NEWS

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1-C

Los Angeles Union Terminal goes into service this week

When you want sam[illegible]-da shipment of standard siz[illegible] TONCAN IRON SHEE[illegible] in the popular gauges — ca[illegible] the nearest distributor liste[illegible] below. He is prepared to giv[illegible] you up-to-the-minute servic[illegible]

ALABAMA
Birmingham ..... Arnold Supply Company
Mobile ..... Mobile Steel Company

ARKANSAS
Texarkana ..... Buhrman-Pharr Hardware Co.

CALIFORNIA
Los Angeles ..... Ducommun Metal & Supply Co.
Los Angeles ..... Union Hardware & Metal Co.
San Francisco ..... Ducommun Metal & Supply Co.

COLORADO
Denver ..... Goldberg Brothers

CONNECTICUT
Bridgeport ..... Hunter & Havens
Hartford ..... Ensworth & Son, Inc., L. L.
New Haven ..... New Haven Plbg. & Supply Co.
Stamford ..... Sheet Metal Mfg. Co., Inc.
Waterbury ..... Weyand Company, Inc., Henry

DISTRICT OF COLUMBIA
Washington ..... Noland Co.

FLORIDA
Jacksonville ..... Cameron & Barkley Co.
Miami ..... Cameron & Barkley Co.
Tampa ..... Eagle Rfg. & Art Metal Works
West Palm Beach . Roofing & Sheet Metal Supply Co.

GEORGIA
Atlanta ..... Atlantic Sheet Metal Corp.
Savannah ..... Atlantic Roofing & Supply Co.

ILLINOIS
Chicago ..... Barnes Metal Products Co.
Chicago ..... Chicago Steel Service Co.

INDIANA
Evansville ..... Ohio Valley Hdw. & Roofing Co.
Indianapolis ..... Tanner & Company

IOWA
Des Moines ..... Iowa Steel Warehouse Co.
Ottumwa ..... Haw Hardware Co.

KENTUCKY
Louisville ..... Stratton & Terstegge Co.
Louisville ..... Todd-Donigan Iron Co.

LOUISIANA
New Orleans ..... Jones Co., J. Wilton

MAINE
Bangor ..... Bragg & Sons, N. H.
Lewiston ..... Hall & Knight Hardware Co.
Portland ..... Blake, W. L. & Company

MARYLAND
Baltimore ..... Conway, William A.
Baltimore ..... Kahl-Holt Company
Baltimore ..... Milcor Steel Co.

MASSACHUSETTS
Boston ..... Avery & Saul Co.
Boston ..... Berger Manufacturing Co.
Boston ..... Herrick Co.
Boston ..... Ryerson & Son, Inc., Joseph T.
Cambridge ..... Austin-Hastings Co.
Cambridge ..... Lamb & Ritchie Co.
Greenfield ..... Aird-Don Co.
Lowell ..... Lowell Iron & Steel Co.
Springfield ..... Lewis Company, Chas. C.
Springfield ..... Millar & Son Co., Chas.
Worcester ..... Merrill & Usher Co.

MICHIGAN
Bay City ..... Jennison Hardware Co.
Detroit ..... Buhl Sons Company
Detroit ..... Mahon Company, R. C.
Grand Rapids .... Behler-Young Company

MINNESOTA
St. Paul ..... Paper-Calmenson Co.

MISSOURI
Kansas City ..... Townley Metal & Hardware Co.
St. Louis ..... Berger Mfg. Co.
St. Louis ..... Hammond Sheet Metal Co.
St. Louis ..... Tiemann Hardware & Supply Co.

NEBRASKA
Omaha ..... Gate City Iron Works

NEW JERSEY
Jersey City ..... N.Y. Iron Rfg. & Corrugating Co.
Newark ..... Dunphey-Smith Co.
Trenton ..... Trenton Sheet Metal Supply House

NEW YORK
Albany ..... Aird-Don Co.
Binghamton ..... Binghamton Hardware Co.
Binghamton ..... Millar & Son Co., Chas.
Brooklyn ..... Atlas Supply Co.
Brooklyn ..... K. & S. Metal Supply, Inc.
Brooklyn ..... Sheet Metal Mfg. Co., Inc.
Buffalo ..... Beals, McCarthy & Rogers, Inc.
Plattsburg ..... Aird-Don Co.
Rochester ..... Case & Son Mfg. Co., W. A.
Rochester ..... Milcor Steel Co.
Syracuse ..... Case & Son Mfg. Co., W. A.
Utica ..... Millar & Son Co., Chas.
Troy ..... Warren & Company, J. M.

NORTH CAROLINA
Charlotte ..... Hajoca Corporation
Greensboro ..... Odell Hardware Co.

OHIO
Canton ..... Berger Mfg. Co.
Canton ..... Milcor Steel Co.
Cincinnati ..... Dieckmann Co., Ferdinand
Cincinnati ..... Moise Steel Co. of Ohio
Cleveland ..... Betz-Pierce Co.
Cleveland ..... Decker-Reichert Steel Co.
Cleveland ..... Kinsner Supply Co.
Columbus ..... Palmer-Donavin Mfg. Co.
Dover ..... Reeves Steel & Mfg. Co.
Tiffin ..... Tiffin Art Metal Co.
Toledo ..... Bostwick-Braun Co.

OREGON
Portland ..... H. B. Davis Iron & Steel Co.

PENNSYLVANIA
Easton ..... H. P. Kinsey
Erie ..... Erie Concrete & Steel Supply Co.
Harrisburg ..... Herre Brothers
Philadelphia ..... Berger Brothers Co.
Philadelphia ..... Berger Mfg. Co.
Philadelphia ..... Carter-Donlevy Co.
Philadelphia ..... Fable & Co., Inc.
Philadelphia ..... Hall & Carpenter
Philadelphia ..... Hyatt & Co.
Philadelphia ..... Obdyke, Inc., B. P.
Philadelphia ..... Potts, Son & Company, W. F.
Pittsburgh ..... Steel Products Co.

RHODE ISLAND
Providence ..... Cartier & Sons Co., M. N.

TENNESSEE
Chattanooga ..... Vance Iron & Steel Co.

TEXAS
Fort Worth ..... Fort Worth Structural Steel Co.
Orange ..... Sabine Supply Co.
San Antonio ..... San Antonio Machine & Supply Co.

UTAH
Salt Lake City ..... Zion's Co-operative Merc. Inst.

VERMONT
Burlington ..... Blodgett Supply Co.
St. Johnsbury ..... Millar & Son Co., Chas.

VIRGINIA
Lynchburg ..... Handy Company, N. B.
Norfolk ..... Tidewater Supply Co.
Richmond ..... Southern Railway Supply Co.
Roanoke ..... Dominion Metal & Culvert Corp.

WASHINGTON
Seattle ..... Seattle Hardware Co.

WISCONSIN
La Crosse ..... Badger Corrugating Co.
Milwaukee ..... Gibbs Steel Co.
Milwaukee ..... Milcor Steel Co.

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ENGINEERING NEWS-RECORD

NEWS

Volume 122 MAY 4, 1939 Number 18

NOTEBOOK NEWS

Quick Surveys of Construction Events

▶ Construction of a system of toll roads across this country is opposed by the U. S. Bureau of Public Roads in a big report just sent to Congress by the President with his blessing. What the bureau wants is to improve the present highway system by the construction of more and better roads serving the main centers of population.

▶ The long controversy over who is to build a bridge to replace the famous Falls View Bridge at Niagara Falls appears to have been settled. The Niagara Falls Bridge Commission has bought the franchise of the International Railway Co., owner of the original bridge. Meanwhile, designing a new bridge has been going ahead so that an early start seems probable.

▶ Public bids are not to be required for the big air bases that the Navy plans to build. This sidestepping of government routine has been authorized to get the work started. Contractors who have built up a good reputation with the Navy may have contracts brought to their doors on silver platters.

▶ Two government departments are going to look into the construction industry, chiefly into the practices of the suppliers of construction materials, to see whether unnecessarily high costs are slowing up construction.

▶ Federal aid in the elimination of stream pollution seems assured. The Senate has passed the Barkley bill which authorizes such aid and sets up the machinery for getting action on the clean-up of large rivers.

Cover photo from Wide World

Deposit Ordered Returned On Incorrect Bid

The Longview, Wash., school board has been ordered by Cowlitz County Court to return a $5,000 deposit which was offered with a bid submitted in error last October. Curtis Gardner of Portland submitted the low bid on a school construction project, but a few minutes after the bids had been opened he appeared before the board, claiming that he had made a mistake in copying the figures. He refused to accept the contract on the figures submitted, but offered to take it on the corrected bid.

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Name of Ruby Dam Changed to Ross Dam

The City Council of Seattle last week adopted a resolution changing the name of Ruby dam to Ross dam, as a tribute to the last J. D. Ross, who was for many years city light superintendent of Seattle and was responsible for construction of the dam.

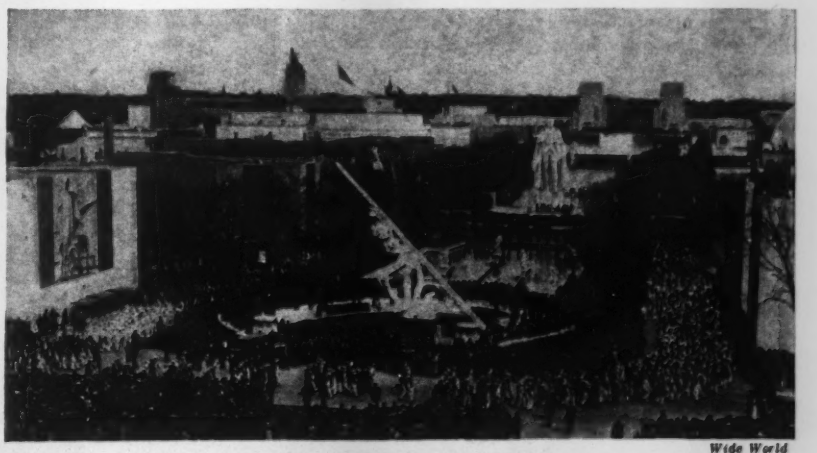
Road Bureau Opposes Toll Superhighways

Federal system of interregional highways is recommended in report

A country-wide grid of superhighways, crossing the nation east and west and north and south, could not be financed out of tolls, the Bureau of Public Roads reported to Congress, April 24. The bureau urged instead that attention be given to developing inter-regional highways in areas of heavy traffic. Congress last year ordered the bureau to report on the feasibility and cost of a toll-financed system of superhighways, three crossing the country east to west, and three running north and south.

The bureau's report states that the six superhighways under consideration would total 14,366 mi., that the total cost would be $2,899,800,000, and that

[*Continued on page 2*]



Wide World

NEW YORK FAIR OPENS

Two major fairs were in full swing Apr. 30 when the 1939 New York World's Fair opened.

Seen above are opening day crowds. In the middle distance is the 85 ft. statute of George Washington, the 150th anniversary of whose inauguration the Fair celebrates.

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Bronx-Whitestone Bridge Completed

Long suspension bridge at New York is completed three months ahead of schedule

The Bronx-Whitestone Bridge spanning the East River at New York near the point where it widens into Long Island Sound went into service on April 29, three months ahead of schedule, the total construction time being 23 months. The bridge provides a much-needed highway connection between the western end of Long Island and the roads serving New England and northern New York. As can be seen in the accompanying airview, it provides an important access road to the New York World's Fair, seen in the background in the picture.

The bridge, which has a center span of 2,300 ft. and side spans of 755 ft., carries two 29-ft. roadways, separated by a structural steel curbing. It has a height of 150 ft. above mean high water at the center and 135 ft. at the channel line.

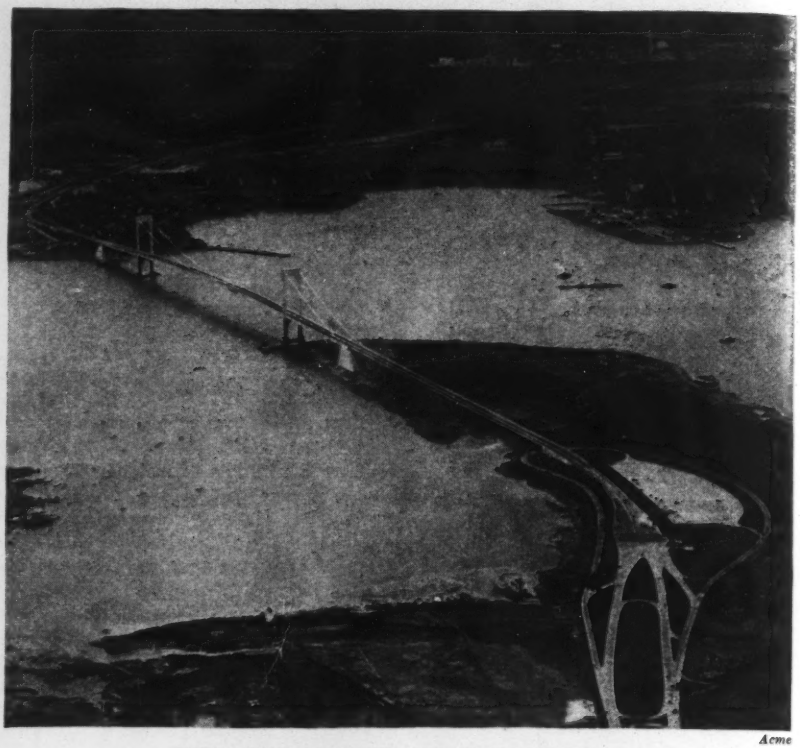
The 377-ft. towers are unusual for their rigid-frame type of construction. Each tower consists of two vertical shafts tied together by two portals, one below the floor and one at the top; there is no transverse diagonal bracing. Both the shaft and the portals are closed box sections; the towers are T-shaped, the width parallel to the length of the bridge tapering from 18 ft. at the bottom to 12 ft. at the top and transverse width constant at 16 ft.

Unusual also is the very light stiffening structure, consisting of an 11-ft. plate girder.

Plate girder approaches

The approach viaduct on the Queens side is 1,620 ft. long and on the Bronx side 2,360 ft., both consisting of continuous plate girder spans on concrete piers. Bridge and approaches contain 22,300 tons of steel work, and the total cost exclusive of property acquisition was about $13,760,000. The bridge was financed by an $18,000,000 bond issue of the Triborough Bridge Authority.

The planning and design of the bridge were carried out under the direction of O. H. Ammann, chief engineer of the authority. Leon S. Moisseiff was consulting engineer on design; Moran, Proctor & Freeman, consulting engineers on the foundation. Madigan-Hyland, of which E. H. Praeger is chief engineer, was in charge of planning of the parkway connections and construction work for the entire project. Contractors on the bridge were Frederick Snare Corp., Corbetta Construction Co., and the American Bridge Co.



Acme

NEW CONNECTION TO LONG ISLAND OPENED

Niagara Bridge Franchise Sold to Commission

The International Railway Co., owner of the Falls View Bridge across the Niagara River at Niagara Falls, N. Y., which was destroyed by ice in January, 1938, has sold all its real estate, rights, and transferable franchises in connection with the Falls View Bridge to the Niagara Falls Bridge Commission, a public body, for $615,000.

On several occasions in recent months the railway company has announced its determination to construct a bridge at the former site, and legal questions about the company's right have held up necessary action in the Canadian Parliament.

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Superhighway Report

(Continued from page 1)

the tolls would not pay back this expenditure. It is further stated that "a direct toll system . . . would not be feasible as a means of recovering the entire cost of the facilities." However, "there are two sections on which it is estimated that the annual toll collections for the year 1960 will slightly exceed the annual cost. These two sections extend from a point near Philadelphia, Pa., to a point near New Haven, Conn., a distance of 172 mi."

The report stresses the urgent need for immediate action in modernizing our present highway system and recommends an inter-regional system of modern highways where traffic congestion warrants it. The master highway plan would include the construction of a special tentatively defined system of direct inter-regional highways.

The factor of adequate rights-of-way, states the report, is one of the greatest obstacles to overcome. The bureau suggests that establishment of a federal land authority would be effective. A more complete statement of the bureau's findings with maps and road sections will be published in the issue of May 11.

The new bridge has two 29-ft. concrete roadways separated by a steel curb.

Bids Are Competitive On Shasta Cement

Prices quoted for low-heat cement vary widely with different conditions of delivery

Bids ranging from $1.07 to $1.65 per barrel of low-heat portland cement were obtained May 1 by the Procurement Division of the Treasury as the result of its request for offers to furnish the 5,800,000 barrels which will be required in construction of the Shasta Dam of the Central Valley project in California. Cement is to be furnished in bulk, f.o.b. point of production or storage.

Bids were asked on a number of different alternates (*ENR*, April 13, 1939, p. 37.). On Schedule 1, covering all or part of the 1,400,000 barrels needed in 1940, the low bid was submitted by the Riverside Cement Co., which offered to furnish 610,000 bbl. at $1.07 per barrel. The California Portland Cement Co. offered 500,000 bbl. at $1.14.

A joint bid of $1.38 to $1.65, depending on the rate of delivery, was offered for the full amount by the Beaver Portland Cement Co. and Talavers Cement Co., both of Oregon, and the Monolith Portland Cement Co., Pacific Portland Cement Co., Santa Cruz Portland Cement Co., and the Yosemite Portland Cement Co., all of California.

A second schedule asked bids on the entire 5,800,000 bbl. needed for the dam. The six companies submitted a bid of $1.46 to $1.65. A bid of $1.19 was received from the Permanente Co. of Simla, Calif., but under somewhat altered conditions. It is understood that this company plans to build a mill if it receives the contract.

Schedule 3 split the total quantity into a 3,100,000 bbl. portion to be delivered at a uniform rate and a 2,700,000 bbl. part to be delivered as needed. On this schedule the six companies bid $1.48 to $1.65 on the constant portion and $1.53 to $1.65 on the 3,100,000-bbl. variable part.

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Competitive Bids Omitted In Navy Air Base Program

In order to speed construction of the new naval air bases authorized by Congress last week, the Navy Department has announced that in building the bases outside the continental United States legislation will be obtained authorizing the department to conclude contracts by negotiation with reputable and qualified contractors, instead of by public advertisement of bids. "Whether such authority will be invoked in each case where it is so authorized," the department announced, "will depend upon the result of negotiations with prospective bidders."

Congress on April 19 authorized the construction of fifteen naval air bases costing about $66,800,000. (*ENR*, April 27, 1939, p. 47.)

The work involved will include dredging and construction of water plant improvements, buildings, water supply, sewage disposal, fencing, landing fields, power plants, fuel storage, distributing systems and services, and recreational facilities. The chief of the Bureau of Yards and Docks will be in charge of the program.

Mathieu

THREE LEVELS OF TRAFFIC

THIS three-level grade separation is part of the new west approach to the Triborough bridge in the Bronx, New York City, officially opened to traffic Apr. 29. The bottom level carries express traffic on Southern Boulevard; the top deck carries the new approach; while the center level accommodates local traffic at the intersection of Cypress Ave. and East 134th St.

Billion and a Half Asked for WPA

President attacks proposal to turn over work relief administration to local governments

An appropriation of $1,477,000,000 to continue the WPA program through the fiscal year 1940 was requested by President Roosevelt in a message to Congress, April 27. This sum is about a third less than the $2,250,000,000 appropriated for WPA during the current fiscal year.

Under the current program, the President said, WPA has employed a maximum of 3,350,000 persons, is currently employing about 2,800,000, and the average employment over the year will be about 3,000,000 people. The proposed appropriation for next year will permit employment of an average of slightly more than 2,000,000 persons.

"Barring unforeseen and unpredictable developments", the President said, "we are justified in expecting an upward trend in the volume of employment between now and June 30, 1940."

Sums asked for other relief agencies would bring the total relief appropriation to $1,750,000,000. They include $123,000,000 each to the National Youth Administration, and the Farm Security Administration; $1,500,000 to the National Emergency Council; $990,000 to the National Resources Committee; $10,000,000 to the Puerto Rico Reconstruction Administration; $1,360,000 for Indian relief; and various amounts to meet administrative expenses in connection with relief in the Treasury, General Accounting Office, Employee Compensation Commission and other regular departments.

Opposes change

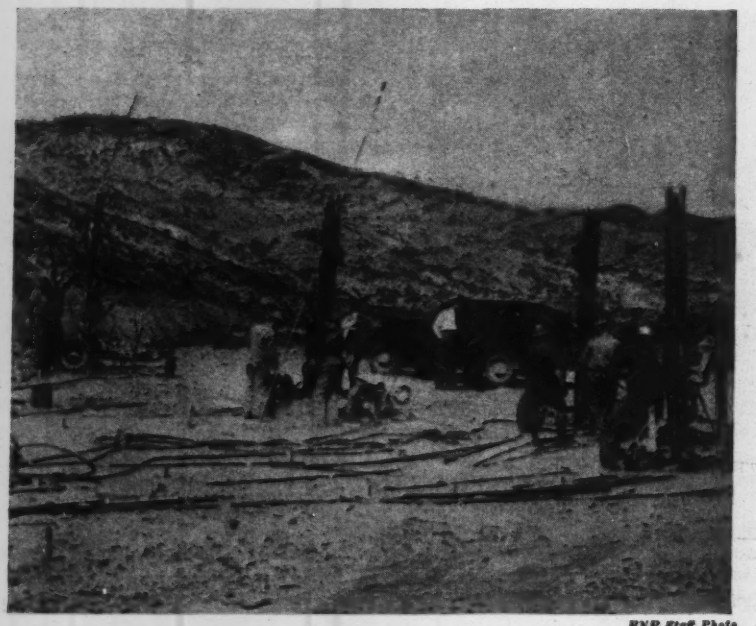
The President urged that the WPA program be continued next year under the same methods as at present. He said, however, that he expected to introduce certain organizational changes, coordinating the activities of various federal agencies, which would make possible "important economies". The President particularly emphasized his opinion that the program should continue to include some projects of a non-construction type to employ white-collar workers.

Proposals to handle unemployment relief through a system of federal grants to the states were attacked by the President in his message. "Inefficiency and confusion through lack of coordination and uniformity are bound to result," he said. "The administrative cost will inevitably be much larger than under a federally operated work program".

Shasta Dam Progress on Two Fronts

U. S. Bureau of Reclamation Photo

PACIFIC CONSTRUCTORS, INC., contractor for Shasta Dam in California, use a model in planning the plant layout that will produce and place over 5,000,000 cu. yd. of concrete. A cableway system with one common headtower and seven or eight traveling tail towers—the brain child of Frank Crowe, general superintendent—will place the concrete; two of the track cables will be 3,000 ft. long. The model serves as a guide in laying out the plant units so they won't interfere with each other. Main features of the proposed plant are: **A**—*400-ft. steel head tower of the cableway, which will house the batching plant and five 4-yd mixers;* **B**—*6,000-ft. belt conveyor for carrying aggregates;* **C**—*Silos and bulk cement unloading plant;* **D**—*Aggregate unloading pits at railroad siding;* **E**—*Contractor's camp;* **1** *to* **8**—*Traveling towers at various elevations (number and location subject to further study).*



ENR Staff Photo

SHASTA DAM is progressing along two fronts—in the laboratory and in the field. In the contractor's office models are studied to determine the most suitable and efficient plant layout, a model of the dam and proposed cableways being shown above. Another larger model of the proposed 400-ft. head tower is being studied to determine if the multiple track-cable anchorage shall be fixed or swivel head to distribute torsional stresses arising from unbalanced loading of the cables.

In the field, excavation of both abutments is the major operation at present. The railroad tunnel at the dam is about complete, so the tracks will be removed from the site at an early date, though diversion of the river through the tunnel must await the completion of 30 miles of railroad relocation.

FORESTS of wagon drills dot the east abutment area at Shasta Dam; excavation is also under way at the west abutment across the river.

Referee Favors Contractor In Tunnel Extra Claim

The Coughlan Const. Co., Inc., of Boston, won the first step in its suit against the Metropolitan District of Hartford for extra compensation for driving the Jefferson St. intercepting sewer tunnel when special referee Judge Alexander W. Creedon reported to the U. S. District Court for Connecticut that the contractor "reasonably and necessarily spent" $63,159 more than he was paid for the tunnel work.

The referee, appointed by the court to ascertain the facts, found that when the contractor bid on the 7,937-ft. tunnel he relied upon information and assurances furnished by the district and a consulting geologist that the bore could be driven by ordinary tunneling methods. Actually, however, a stretch of soft ground was encountered that ultimately required compressed air tunneling methods and unusually heavy timbering. The contractor's contention that information furnished him failed to reveal the true nature of the ground was upheld by the referee. Final decision as to the claim now rests with the court.

The contractor, then organized as James J. Coughlan & Sons, Inc., bid $394,891 for the job in October, 1934. Changes in quantities brought the final payment up to $415,116, but the referee finds the contractor spent $478,276, including a 15 per cent profit.

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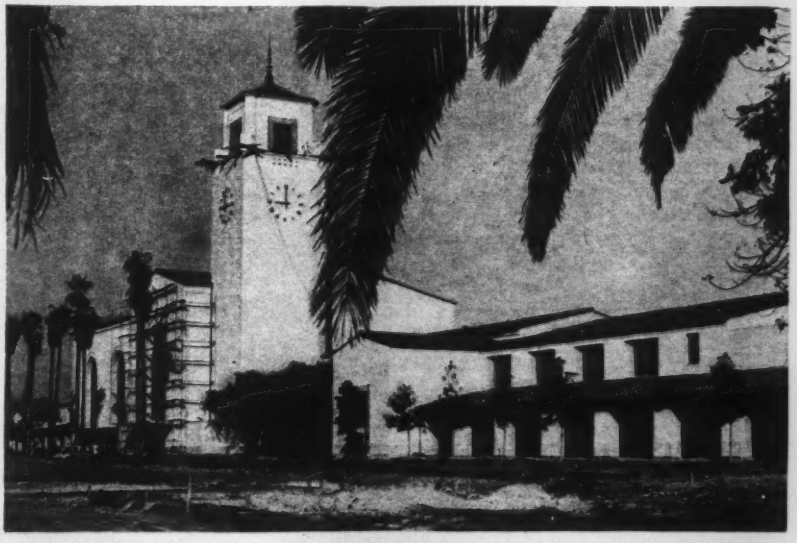
Construction Industry To Be Scrutinized

A review of housing conditions and other problems involving the construction industry was listed sixth in a series of seven subjects announced by the Temporary National Economic Committee for future consideration. The committee has recently been voted an additional $600,000 by Congress to continue its work.

It is anticipated that price policies in the construction materials field will occupy a prominent place in the committee's deliberations.

Attorney General Frank Murphy, in discussing the future anti-trust activities of the Department of Justice, stated last week that the building industry is to be a major subject for study by the anti-trust division. "Within the next 25 years," said Murphy, "there certainly is nothing of more importance economically than a highly energized and productive building industry. The investigation of that industry, including the cost of labor as well as materials, is being carried forward vigorously."



LOS ANGELES' UNION TERMINAL OPENS THIS WEEK

FOLLOWING a three day's celebration May 3, 4 and 5, Los Angeles' new union passenger station will go into use May 7. The terminal was built by the Union Pacific, Southern Pacific and Santa Fe railways at a cost of $11,000,000.

The first day of the celebration is being marked by a parade representing Southern California transportation progress from the camel to the streamlined train. The other two days are devoted to a pageant depicting the struggle of the legislature and Congress to improve transit facilities to the southwest.

Covering forty acres with buildings and tracks, the station is scheduled to handle 60 trains and 7,000 passengers daily. At present terminal facilities in the city are widely scattered.

WASHINGTON HIGHLIGHTS

Special reports by Paul Wooton

THE BARKLEY stream pollution bill was passed by the Senate May 1 and sent to the House. The bill, which has no compulsory features, provides for a system of federal studies and grants-in-aid to the states for encouragement of pollution elimination under the direction of a new division of water pollution control in the U. S. Public Health Service.

COMPLETION of the Florida Canal at a cost of $197,921,000 is provided for in a bill which has been favorably reported to the House by the House committee on rivers and harbors and reported to the Senate by its committee on commerce without recommendations. The House committee report pointed out that the Chief of Engineers had estimated the annual cost of the project at $8,641,000 as compared with annual benefits at the time of its opening of $14,000,000.

HARCOURT A. MORGAN, chairman of TVA board of directors, was nominated by the president on April 27 for reappointment to the board. Morgan's term expires May 18, and the renomination would cover a full nine-year term.

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Wyman to Leave Southwest U. S. Engineer District

Major Theodore Wyman, Jr. will leave his post as U. S. District Engineer at Los Angeles early in the fall, it has been announced, and will be assigned to duty in the Hawaiian department. As district engineer at Los Angeles since 1935, Major Wyman has had charge of the Los Angeles basin flood control program as well as numerous port development projects.

Major Wyman will be succeeded at Los Angeles by Lt. Col. Edwin C. Kelton, at present commanding the 14th Engineers in the Philippines.

• • •

Two Miles of Catch Basins Lifted in Chicago Blast

Explosions in a two-mile length of an 8-ft. sewer in Cicero Ave., Chicago, blew up a number of catch basins April 30, while many manhole covers alongside were not moved. Little damage was done to the sewer, but nearby windows were broken and a manhole cover crashed through an automobile; damage was less than $3,000.

OBITUARY

JAMES R. STACK, St. Paul civil engineer, died recently at the age of 56.

WALTER C. BUETOW, former state highway engineer of Wisconsin and recently conneoted with the Milwaukee public works department, died Apr. 23 at the age of 54. After his graduation in 1908 from the University of Wisconsin, Buetow worked for a time as bridge engineer for the Chicago, Milwaukee & St. Paul R. R. In 1911 he joined the staff of the Wisconsin highway commission. He left the commission in 1924 to become chief engineer of the Stein Construction Co. of Milwaukee and in 1928 he became state highway engineer. He was displaced from that post in 1931.

OLIVER H. HORNER, a member of the Kansas City firm of Horner & Wyatt, died recently at the age of 51.

JOHN STROM, Seattle general contractor, for the past ten years president of the Newton Construction Co., died in Seattle Apr. 24.

JAMES MUNN, who retired a year ago from his post as general superintendent of construction for the Metropolitan Water District of Southern California, died in Los Angeles Apr. 28, aged 74. Munn came to this country as a young man to enter the construction industry and after practicing privately for several years, entered the service of the U. S. Bureau of Reclamation in 1909. From 1917 until 1924, when he left the bureau, he was in charge of all cost keeping and engineering administrative work. He then took charge of construction of the Mokelumne water supply project of the East Bay Municipal Utility District at Oakland and after a year as chief of construction of the dam division of the Los Angeles Water Department he became general superintendent for the water district in 1930, in charge of construction of the Colorado aqueduct.

CARL F. RINGER, SR., who retired in 1934 from architectural practice which he had carried on in Milwaukee in partnership with his son, died Apr. 27 at the age of 88. Ringer was formerly city building inspector of Milwaukee and had been architect in charge of construction of many industrial plants and commercial buildings in Milwaukee.

COMMDR. ROBERT G. PECK, U.S.N., retired, who had been active in Navy hydrographic work, died Apr. 26 in Washington at the age of 89. Peck graduated from the Naval Academy in 1870 and during the following eighteen years of sea service did pioneer hydrographic work for the Navy. During the World War, Peck was called back to service in the hydrographic office, although he was then nearly 70.

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Contractor and Engineer Found Guilty in Minnesota

L. L. Allen, former maintenance engineer in the Minnesota highway department, and Samuel J. Reader, Minneapolis contractor, have been convicted on charges of aiding in the payment of false claims against the Minnesota state highway department. Reader and Allen were indicted last March along with N. W. Elsberg, former state highway commissioner, and J. T. Flannagan, former highway department engineer, on charges which included false auditing of payment of claims, and wrongful receipt of state funds (*ENR*, Mar. 6, 1939, p. 33).

Elsberg went on trial on similar charges May 1.

CONTRACTS AND CAPITAL

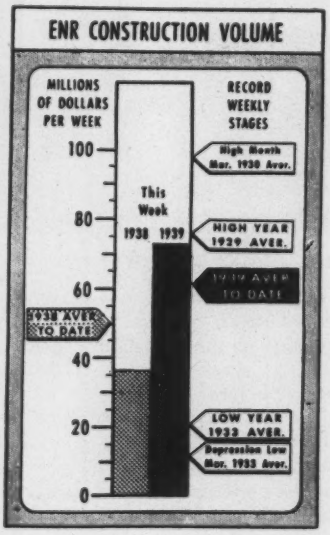
ENGINEERING construction awards for the week, $73,267,000, are 102 per cent above the volume for the corresponding 1938 week, and 52 per cent above last week. This is the seventh consecutive week in which current awards have exceeded their respective 1938 values.

The cumulative construction volume for 1939 to date totals $1,115,104,000, a 26 per cent gain over the $884,381,000 reported for the 18-week period last year.

Public construction for the week is 198 per cent above a year ago and 87 per cent above last week, but private awards are 27 and 25 per cent lower, respectively, than a year ago and a week ago.

In the classified construction groups, both public buildings and streets and roads reached their third highest week of the year. Three large awards for USHA-financed municipal housing projects combined with the $10,871,000 federal building award in Washington, D. C., are responsible for the public building total, and 11 large street and road lettings in 11 states totalling over $13,000,000 are responsible for the highway volume. In addition to these two classes of work, waterworks, sewerage, bridges, and unclassified are above the 1938 week; and waterworks, sewerage, bridges, industrial buildings and unclassified construction report gains over last week.

New capital for construction purposes for the week totals $20,925,000, an increase of 173 per cent over the volume for the 1938 week. The current week's total is made up of $17,287,000 in corporate financing, $3,411,000 in state and municipal bonds, and $227,000 in PWA allotments for federal construction.



CONTRACTS

(Thousands of dollars)

	Week Ending May 5 1938	Apr. 27 1939	May 4 1939
Federal	$2,625	$3,512	$14,086
State & Municipal	18,128	29,623	47,819
Total public	$20,753	$33,135	$61,905
Total private	15,569	15,162	11,362
TOTALS	$36,322	$48,297	$73,267
Cumulative 1939 (18 weeks)			$1,115,104
1938 (18 weeks)			$884,381

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1938 18 Wk.	1939 18 Wk.
NON-FEDERAL	$439,495	$378,155
Corporate securities	101,250	85,471
State & Mun. bonds	219,303	213,349
R.E.A. loans	.....	22,211
R.F.C. loans	63,420	234
P.W.A. allotments	2,029	.....
U.S.H.A. loans	53,493	56,890
FEDERAL	$86,532	$311,427
TOTAL CAPITAL	$526,027	$689,582

FHA MORTGAGES

	Week Ending Apr. 30 1938	Apr. 22 1939	Apr. 29 1939
Selected for appraisal	$22,465	$25,576	$25,300*
Cumulative 1939 (17 weeks)			$388,485*
1938 (18 weeks)			$267,762

*Subject to revision.

ENR INDEX NUMBERS

Index Base		1913	1926
Construction Cost	Apr.	234.86	112.90
Building Cost	Apr.	196.45	106.20
Volume	Mar.	210	92.

Savannah River Job Gets Army Approval

Army recommends $28,000,000 Clark Hill power and flood control project in Georgia

A report recommending the construction of the Clark Hill dam and reservoir on the Savannah River about 25 miles above Augusta, Ga., has been submitted to Congress by Major General Julian L. Schley, Chief of Engineers. The project, which would cost an estimated $28,000,000, would benefit navigation and provide flood control and hydro-electric power. A survey of the market for power was completed by the Federal Power Commission some time ago and the project is on the approved list of the National Resources Committee.

Gravity dam planned

Although a detailed design has not yet been made, it is recommended that a concrete gravity dam be built with a maximum height of 150 ft. and length (including an earth dike extension) of 5,100 ft. The spillway would consist of 30 gates 25 x 36 ft. in size, with an additional trash gate. Generating equipment would total 140,000 kw. in four units, with provision for the ultimate installation of one additional unit.

An authorization and appropriation by Congress are necessary before the project can be placed under construction.

Tunnel Bids Asked On Colorado-Big Thompson

The Bureau of Reclamation will open bids June 7 for construction of the 13-mile tunnel under the Continental Divide that will divert 300,000 acre-ft. of water from the Colorado River to irrigate 615,000 acres of land on a tributary of the South Platte River — part of the Colorado-Big Thompson reclamation and power development. A deposit of $500,000 will be required with each bid, and a performance bond of $2,500,000. Completion of the work will be required in not more than 2,550 calendar days.

On May 23, the Yuma, Ariz., office of the bureau will open bids for the construction of approximately 46 miles of the Coachella Canal, a part of the All-American Canal system.

In both cases the government, in accordance with its usual custom, will purchase separately the major part of the needed materials.

• • •

Quebec's Gasoline Tax Raised to Eight Cents

The gasoline tax of the Province of Quebec has been increased two cents a gallon to a total of eight cents. Additional revenue will be used to assist financing the $50,000,000 program of highway maintenance and construction planned for the year 1939. An increase in revenue of about $3,000,000 is expected. Gasoline is measured in Imperial gallons in Canada, or 1.2 U. S. gallons.

Wide World

THE MOST IMPORTANT ROAD IN THE WORLD

PROBABLY no other road anywhere is as important to its users as this unpaved earth road which now forms China's only means of obtaining supplies from the outside world. Still under construction by hand labor, the highway winds through mountainous country from Lashio in Burma to Kunming in China. This view shows part of the Burma end.

LABOR NOTES

DREDGE WORKERS are covered by the New York State unemployment insurance law if the dredge is not engaged in a maritime venture, the state unemployment insurance appeal board ruled April 26th. The decision was made in connection with the case of an employe on a sand-sucking dredge which had no propelling power and which operated 30 ft. off the shore yard of a sand company. It was emphasized that for sixteen years the dredge had been connected with the shore by a pipe line and water line.

At the same time, the board held that a worker on a self-propelled steam derrick, used to transport machinery from ship to shore in the marine base where the employer had his shipyard was not covered by the act.

CARPENTERS on the Red Hook housing project in New York City went on strike last week, claiming that they, rather than the metal workers, should lay the metal bases for partitions.

THE COUNTY CONSTRUCTION CO., holder of a $663,000 contract on a portion of the South Penn Toll Road in Pennsylvania last week abrogated a closed shop contract with the Construction, General Labor, and Material Handlers Union AFL, and announced it would employ local workers on an open shop basis. The contractor took this action after anti-union farmers and laborers at Somerset, Penn., had wrecked the union headquarters and driven two organizers out of town.

CONTRACTORS in Juneau, Alaska, have organized the Juneau Contractors and Employers Association, to act as bargaining agents for the employers with the local unions.

The association last month settled a week old strike when it agreed to a wage scale for common labor of 80¢ an hour, with a 44 hour week. The CIO Industrial Union, Local 882, represented the workmen.

• • •

Canada to Cut Income Tax Of Firms Which Build

The annual budget introduced to the Canadian Parliament April 25, includes a proposal to reduce the federal income tax of Canadian firms which build new plants or extend existing plants. Under the plan, a credit would be allowed against the federal income tax equal to 10 per cent of the cost of the new constructions.

Capt. C. H. Chorpening, (left) in charge of construction of the Fort Peck Dam, doesn't seem to be worried very much over reconstruction operations as he talks over the situation with **C. S. Smith,** superintendent of dredging and filling operations. Army engineering personnel generally keeps on the move, but these two have been on the job since those trying days in 1934, when accommodations at Fort Peck were suitable only for jackrabbits and coyotes. Chorpening is one of the original group of officers transferred to the wide-open spaces of eastern Montana from the lower Mississippi River levee projects; Smith was formerly with Bates & Rogers Const. Co. and other big outfits.

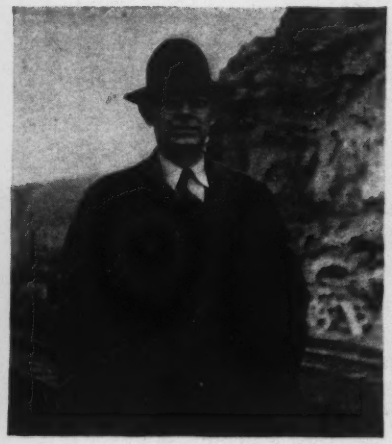
Deep beneath North State St. these two men are driving the first section of tunnels for the new Chicago subway system. At the right is **Charlie Herlihy,** energetic vice-president and general manager of the Herlihy Mid-Continent Co., contractor on the project. The gentleman at the left is **V. E. Gunlock,** resident engineer for the Chicago Department of Subways and Traction. Compressed air tunnels in Chicago's blue clay are an old story to this pair, for they have been together on many an intercepting sewer tunnel in the past few years. This particular subway section includes a station area, which is entered from a side drift.

MEN AT WORK

Transplanted from Vermont (but a more ardent Floridian is hard to find!) **Frank O. Lee,** director of public works, has been in St. Petersburg for 16 years. His responsibilities range from airport management to water distribution. Here he is looking over construction progress on the half million dollar municipal building, completely designed in his office.

Walter C. Smith, who became city manager of Wheeling, W. Va. on Apr. 1, following two years of service as city engineer for that place. Previous to this, from 1933 to 1936, he was director of the Ohio County, West Virginia Relief Administration. He has been engaged in private engineering practice in the city of Wheeling since 1909.

Lawrence G. Rice will operate America's most unusual sewage disposal works—the coke mat filter installation recently completed for the city of Niagara Falls, N. Y. Rice served as resident engineer on the plant construction, which was particularly difficult because of the location on the side of the gorge, a short distance below the Falls.



ENR Staff Photos

Cleveland Gets Award For Health Protection

Among cities of over 500,000 population, Cleveland was judged to have met its health problems most effectively when it received the 1938 award of merit of the American Public Health Association and the U. S. Chamber of Commerce. Secondary awards in this class went to Buffalo and Pittsburgh.

In making the award, each community is appraised on what measures it takes to provide and safeguard its water supply, to furnish adequate and safe sewage disposal, and on various other public health requirements.

Among cities over 250,000 population, Providence was the winner, with secondary awards to Memphis, Louisville, Dallas and Cincinnati. Grand Rapids was the winner among cities of over 100,000; Newton, Mass., among cities over 50,000; Plainfield, N. J., among cities over 20,000; and Englewood, N. J., among cities of less than 20,000.

In addition, special awards were given to Baltimore; Brookline, Mass.; Detroit; Greenwich, Conn.; Hackensack; Hartford; Newark; New Haven; Pasadena; Schenectady; and Syracuse.

MEETINGS

NATIONAL FIRE PROTECTION ASSOCIATION, annual meeting, Chicago, May 8-12.

AMERICAN ROAD BUILDERS ASSOCIATION, annual business meeting, Willard Hotel, Washington, May 24-25.

NATIONAL CONFERENCE ON STATE PARKS, annual meeting Itasca State Park, Minn., June 5-7.

AMERICAN WATER WORKS ASSOCIATION, annual convention, Atlantic City Auditorium and Convention Hall, Atlantic City, N. J., June 11–15.

SOCIETY FOR THE PROMOTION OF ENGINEERING EDUCATION, annual meeting, Pennsylvania State College, State College, Pa., June 19-23.

AMERICAN SOCIETY FOR TESTING MATERIALS, annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26-30.

REGIONAL AND LOCAL

AMERICAN SOCIETY OF CIVIL ENGINEERS, section meetings: Mid-South, Peabody Hotel, Memphis, May 5-6; Arizona, Pioneer Hotel, Tucson, May 13.

EASTERN PHOTO-ELASTICITY CONFERENCE, Cornell University, Ithaca, N. Y., May 13.

MEN AND JOBS

NORMAN MCKAY, formerly resident engineer at Clarkston, for the Washington state highway department, has been made supervising engineer on construction of an interstate bridge across the Snake River between Clarkston and Lewiston, Idaho.

JOE HOLLINGSWORTH has been made resident engineer at Clarkston for the Washington highway department, succeeding Norman McKay.

JOHN J. GAWKINS, for ten years city engineer of Rome, N. Y., has been made director of WPA area No. 2 with headquarters at Utica.

IRVING L. JOHNSON, associate bridge engineer in the California division of highways, has left that post to join the sales staff of the Raymond Concrete Pile Co. at Los Angeles. Johnson is a graduate in civil engineering of Stanford University.

GEORGE G. EVANS has been made resident engineer for the Ohio highway department in Athens, Hocking and Vinton counties. Evans was for four years city engineer of Zanesville and earlier was county engineer of Muskingum County.

J. R. BURKEY, for fourteen years chief engineer of the bureau of bridges in the Ohio highway department and connected with the department since 1911, has resigned to become consulting engineer in the steel piling division of the Union Metal Mfg. Co. of Canton, Ohio.

WILLIAM S. HINDMAN, designing engineer in the Ohio highway department bureau of bridges, has been made acting chief engineer.

GEORGE H. HENDERSON has been appointed deputy director and chief engineer of the Rhode Island department of public works. For many years prior to the change in state administration four years ago, Henderson was chief engineer of the old Rhode Island state board of public roads.

CHARLES E. CAREY, principal construction engineer on the Bonneville project, has been named acting administrator of the project to succeed the late J. B. Ross. Carey held the same post during Ross' last illness.

HARRIS ROBINSON has been appointed acting division engineer for the North Dakota highway department in the Bismarck office.

WILLIAM ROBINSON succeeds G. W. Pinck as district engineer at Syracuse for the New York state department of public works. For the past few years Robinson has been assistant to the Utica district engineeer, and, except for two years of war service, he has been with the state since 1913.

M. J. BAHIN has been appointed resident engineer inspector for PWA in Ohio. It was incorrectly stated in a previous issue that he had been made manager for PWA; there is no such position as manager in the PWA field force.

CLIFFORD L. ROBINSON has been elected county highway superintendent of Broome county, New York.

JAY E. HENRY has been appointed acting city engineer of Wheeling, West Va., succeeding W. C. Smith, recently appointed city manager.

EVERETT W. HIGSON has been elected chairman of the sewer commission of the city of Cranston, R. I. Higson has been connected for the past fifteen years with the Central Engineering & Construction Co.

WILLARD H. BUENTE has been appointed chief engineer of the Pittsburgh City Planning Commission to succeed J. Fred Triggs, recently resigned. Buente graduated in 1912 from the Carnegie Institute of Technology and has practiced in Pittsburgh for many years.

CAPT. L. E. MIELENZ, in charge of the Memphis flood control project of the U. S. Engineers since 1936, has been transferred to the Philippines.

CAPT. HARRY MEYER has been transferred from the Buffalo office of the U. S. Engineers to Memphis to succeed Mielenz.

LESTER BOOKER, who recently resigned an engineering post with the WPA to become resident engineer at Prescott for the Arkansas highway department, was dismissed after two days service. No explanation of the dismissal has been made.

R. F. POSTON has resigned his post as assistant engineer in the South Dakota State Board of Health to join the staff of the U. S. Public Health Service on Ohio River stream pollution surveys at Chattanooga. It was incorrectly stated in our issue of April 20 that Poston had been connected with the North Dakota board.

CONSTRUCTION REPORTS

Compiled by BUSINESS NEWS DEPARTMENT
Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, MANAGER
(Daily service also available—Write for details)

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

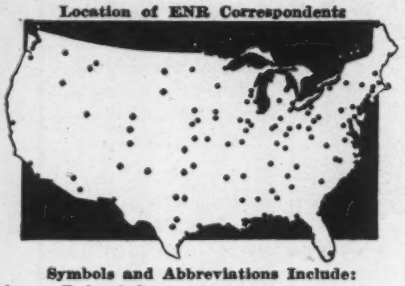
Classes of Construction
(Named in order of Listing)

Water Supply	Unclassified
Sewers, Waste Disposal	Materials, Equipment
Bridges, Grade Cross'gs	Public Buildings
Streets & Roads	Commercial Buildings
Earthwork, Waterways	Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads); BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR); LOW BIDDERS ($500,000 projects and over); CONTRACTS AWARDED

Location of ENR Correspondents



Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD McGraw-Hill Construction Daily

WATER SUPPLY

PROPOSED WORK

Ill., Fulton—City, c/o City Clerk, bids early in May, WW and distr. sys. $50,000. Caldwell Eng. Co., Jacksonville, engrs.

Ill., Rushville—I. Payton, city clk., voted bonds WW imprv., tank on tower, filter plant, storage facilities, etc. $75,000. PWA. Wood, Walraven & Tilly, $22½ S. 6 St., Springfield, engrs.

Ind., Chesterfield—H. Moore, pres. Town Trustees, plans purchasing, imprv. Chesterfield Water Co. plant, incl. new well supply and pump. equip. $15,000 or more.

Kan., Fredonia—O. C. Wilson, city engr., WW and distr. sys. $60,994. Appplied for $38,700 WPA grant. Paulette & Wilson, Farmers Union Bldg., Salina, and 1006 Kansas Ave., Topeka, engrs.

O., Ravenna — W. Zoll, dir. Pub. Serv., auxiliary watermain, 1½ of c.i. or concrete pipe. $40,000.

Okla., Fort Cobb—Impounding reservoir on Cobb Creek. $40,000. R. O. Bradley, Chickasha, engr.

Okla., Miami—W. W. Dobson, mayor, dam across Neosho River at Conner Bridge, to create lake for water supply and recreation purposes. $175,000. Probably WPA project. G. Stein, Miami, engr.

Ore., Oregon—Enlarging water sys. Approx. $200,000. Applied for $151,118 WPA allot. A. E. Miller, city engr.

Tex., Gladewater—A. J. Wood, mayor, recalled bond issue, WW sys. imprv., new c.i. and galvanized pipe lines, pumping equip. $25,000. Project dropped. CD 10/11.

Va., Charlottesville—S. Burnley, city mgr., approved bond issue, water, sewer, gas main exten. and street work to annexed area of Charlottesville. $150,000.

★**Wash., Everett**—Raising dam at lower end Lake Chaplain, pipeline from Sultan River diversion dam to tunnel leading into lake, clearing around lake, concrete lining tunnel. $1,100,000. WPA asked to allot $879,141 for labor. G. G. Paine, City Hall, engr.

Wash., Port Townsend — Exten. untreated wood stave pipe to Hadlock-Irondale Dist. $21,169. WPA asked to allot $11,731 for labor.

Wash., Raymond—Clearing 110 acres near Butte Creek watershed, draining swamps, erecting 800 ft. woven wire fence around old Riverview Reservoir, replacing 8,400 ft. pipe. $24,934. WPA asked to allot $14,727 for labor. J. E. Buckingham, City Hall, engr.

Ont., Caledonia—J. W. Avery, clk., WW sys. $20,000. Dpt. P. Health, Toronto, engrs.

Ont., Larder Lake—WW sys. $25,000. Dpt. P. Health, Toronto, engr.

Ont., Markdale — T. Tuck, clk., filtration plant. $25,000. Dpt. P. Health, Toronto, engr.

Ont., Orillia—G. B. Perryman, clk., filters and pump. equip. at filter plant. $15,000. L. G. MacNeice, Town Hall, engr.

Ont., Sudbury—WW sys. for new townsite of McKim. $20,000. J. D. Dionne, clk.

Que., La Tuque—J. Asselin, engr., Town Hall, water storage dam. $25,000.

Que., St. Felix de Valois—O. Henault, clk., aqueduct $20,000; fire alarm sys. $6,000. **Maturity summer.**

Sask., Kamsack—Bids in May, chlorinator and sedimentation basin. J. B. Bloomfield, Town Hall, engr.

BIDS ASKED

Bids Asked May 8

★**Conn., New Britain**—M. W. Bannan, chn. Bd. Water Comrs., City Hall, headhouse and filter equip. only for WW imprvs. and addns. Over $15,000. Total est. $550,000. PWA. G. Molleur, city engr. CD 4/17—ENR 4/20.

Sask., Saskatoon—A. Leslie, city comr., 4,900 lin. ft. 12 in. watermains, valves, hydrants, specials, jointing materials. G. D. Archibald, City Hall, engr. CD 3/29—ENR 4/6.

Bids Asked May 9

Ia., Thornton—Tank and tower, pumphouse, distr. sys. for WW. $22,697. PWA. Currie Eng. Co., Webster City, engrs.

Bids Asked May 10

Md., Baltimore — Bd. Awards, City Hall, Southeastern low service transmission watermain. Bureau Water Supply, Municipal Bldg., engrs.

O., Green Springs—Water softening and filtration plant. $65,000. F. G. Brown, Marion Bldg., Marion, engr. CD 4/24—ENR 4/27.

N. S., Dartmouth—Director Contracts, Dpt. National Defense, Ottawa, Ont., pump. equip. and intake piping at R.C.A.F. Sta. $50,000. Major H. Maple, Ottawa, Ont., engr.

Bids Asked May 11

N. Y., South Fallsburg—Town Bd. at office of Town Clerk, Thompsonville Rd., Contr. A, wells and pump. stations, Contr. B, watermains, accessories, Contr. C, standpipe; Alexander Potter, consult. engr., 50 Church St., New York, engr.; adv. ENR 5/4. SD 3/23—ENR 3/30.

Bids Asked May 12

O., Covington—WW plant. $50,000. W. W. Morehouse, U. B. Annex, Dayton, consult. engr.

Bids Asked May 16

★**Ky., Owensboro**—Contr. 12, intake structure in connection with $2,313,370 PWA WW and power plant. Black & Veatch, 4706 Bway., Kansas City, Mo., engrs.

Bids Asked May 16

N. C., Asheboro—W. A. Bunch, mayor, WW imprv., 1½ mgd filtration plant with 970,000 gal. clear water basin, 40,000 gal. wash water stand pipe, laying 2,000 ft. B & S pipe, furnishing 90 tons AWWA water pipe and specials, etc. W. M. Piatt, Durham, engr.

Bids Asked May 22

Calif., Ventura—Constructing reservoir roof and 16 in. welded steel by-pass pipe line, valves and appurtenances. Over $15,000. C. Froerer, City Hall, engr.

CONTRACTS AWARDED

Calif., San Francisco—Pub. Utilities Comn., City Hall, laying c.i. watermains, Linda St., between 19 and 20 Sts., to San Francisco Water Dpt., 425 Mason St., **$1,023.** City furnishes fittings and pipe. Bids 4/21. CD 4/14.

★**Conn., New Britain** — Laying pipe lines, excav. for filter unit and clearing water basins, Contr. 3, to Joseph Battaglia & Sons, 1208 Corbin Ave., **$36,170.** Award subject to **PWA** approval. Total est. $599,000. Bids 4/26. CD 4/17—ENR 4/20.

D. C., Wash.—Dist. Comrs., District Bldg., 250,000 gal. water tank, Lorton, Va., to Chicago Bridge & Iron Co., 1900 Walnut St., Phila., Pa., **$24,440.** Bids 3/22, awarded 3/24. CD 3/10—ENR 3/16.

Fla., Gainesville—WW imprvs., pipe, valves, boxes, hydrants, to J. L. Kelly, Miami, $13,136. **PWA.** Bids 3/27. CD 3/22.

Ga., Atlanta—200 kw. steam turbine with gear driven unit, at Hamphill Ave. Pump. Sta., also removal 10 mgd. pump. engine, to Burford, Hall & Smith, 140 Edgewood Ave., **$29,942.** Est. $29,919. **PWA.** Bids 4/24. CD 4/18.

Ia., Webb—City, WW sys., to Hoak Constr. Co., West Des Moines, Ia., **$14,652.** Subject to **PWA** approval. Bids 4/14. CD 4/10.

Ky., Campbellsville—R. L. Marshall, mayor, Contr. 2, settling basin, and Contr. 3, repairing elevated tank, etc., to Fry Eng. Co., Cynthiana, **$32,891.** Est. $35,000. **PWA.** Bids 4/17. CD 3/27—ENR 3/30.

Ky., Corbin—Deep well and aerator service pumps, grounds storage tank, to J. F. Pritchard & Co., Dwight Bldg., Kansas City, Mo., **$65,700.** Bids 4/18. CD 4/6.

Ky., Russell—E. W. Smith, mayor, steel tank, Russell Height Dist., to Chicago Bridge & Iron Co., Rockefeller Bldg., Cleveland, O., **$2,710.** Bids 4/18. CD 4/7.

La., Bernice—J. M. Taylor, mayor, water filtration plant, to B & M Constr. Corp., Petroleum Bldg., Oklahoma City, Okla., **$8,800.** Bids 3/11. CD 3/10.

Mass., Westboro—Commonwealth of Massachusetts, Dpt. P. Welfare, H. D. Chadwick, M.D., comr., State House, Boston, constructing 150,000 gal. steel, elevated water tank with turbo pump and piping, at Lyman School for Boys, to Chicago Bridge & Iron Wks., 250 Stuart St., Boston, **$28,855.** Est. $30,000. Bids 4/11. CD 3/30—ENR 4/6.

Minn., Maple Plain—E. L. Conover, village clk., water mains and pump house. **WPA. $45,000.** Druar & Milinowski, 830 Globe Bldg., St. Paul, engrs.

Mo., Jefferson City—State Bldg. Comn., Bi-Partisan Advisory Bd., E. M. Eagan, secy., water well, pump house, pipe, conduit lines at Intermediate Reformatory, Algoa Farms, Algoa, near here, to Layne-Western Co., RMA Bldg., Kansas City, Mo., **$11,000.** Bids 11/30. CD 3/8—ENR 3/16.

N. J., Keyport—Mayor and Council, artesian well at municipal WW, to Ridpath & Potter Co., 22 and Cambria Sts., Phila., Pa., **$4,300.** Bids 4/24, awarded 4/24. CD 4/17—ENR 4/20.

N. J., Morristown—Contr. A, general construction pumphouse, to Clanpaglio Constr. Co., 6 Thompson St., **$2,979****Contr. B, 2 electric centrifugal water pumps and control appurtenances, to Westfield Eng. Co., 763 Central Ave., Westfield, **$5,978. PWA.** Bids 3/17. CD 3/9.

N. Y., Dunkirk—Relocating watermains and sanitary sewer lines, in area connected with grade crossing eliminations of New York Central R.R., own forces, under supervision A. G. Walter, city engr. Over **$25,000.** Work probably starts about July 1. CD 3/15—ENR 3/23.

N. Y., Johnstown—Bd. Supervs. Fulton Co., water supply imprvs., walls, walks, drives, etc., at County Home, **WPA.** Over **$20,000.**

†**N. Y., Madison Barracks**—Con. Q.M., Madison Barracks, water filtration plant, to Bevan Constr. Co., 3566 E. Genesee St., Syracuse, **$46,500.** Bids 4/26. CD 4/6—ENR 4/13.

N. Y., Pulaski—Village, laying concrete water line pipe, Maple, Pine, Delano, N. Jefferson Sts., also installing hydrants, service connections. **WPA. $38,464.**

N. Y., Watertown—Laying watermains, Main Ave. and Coffeen St., **$31,593;** also in Main, Morrison, S. Hamilton and Sherman Sts. **$39,230.** Both **WPA.**

N. C., Creedmoor—I. E. Harris, mayor, WW and sewerage sys., Imhoff tank, disposal plant, pipe line, to W. A. Erert, Charlotte, **$79,363.** Est. $70,000. **PWA.** Bids 4/18. CD 4/4—ENR 4/6.

N. C., Kenly—Contr. 4, two pump units, to Worthington Pump & Mchy. Co., Chapel Hill, **$926. PWA.** Bids 4/5. CD 3/27—ENR 3/30.

N. C., Winterville — Contr. 3, tank and tower, to Taylor Iron Wks., Macon, Ga., **$7,777.** Est. $9,000. **PWA.** Bids 4/14. CD 4/4—ENR 4/6.

O., East Liverpool—Furnishing 250 tons pipe for city watermains, to J. B. Clow & Sons, 201 N. Talman Ave., Chicago, Ill., **$15,000.** CD 3/17—ENR 3/23, under CA.

Water Supply (Continued)

★**O., Toledo**—Furnishing, installing 44,700 ft. steel force main, Contrs. C, D and E, to W. W. Magee, 118 Central Ave., St. Paul, Minn., **$1,055,529.** Total est. $1,700,000. Bids 4/12, awarded 4/26. CD 3/30—ENR 4/6.

Okla., Brinkman — Digging well, exten. mains, **WPA. $25,521.** R. Lindsay, Old Court House, Oklahoma City, engr.

Okla., Grandfield—Exten., lowering mains, **WPA. $16,360.** R. Lindsay, Old Court House, Oklahoma City, engr.

Pa., Altoona—New main feed water service line, Logan Blvd., **WPA.** Over **$25,000.** CD 2/28—ENR 3/2.

Pa., Erie—Bureau Water, 701 French St., J. Dunwoody, supt., additional c.i. watermain extens., new lines in Hudson Rd., 34, 36, 37, 38, Pine, Ash, Pear, Brandes Sts., Kline and Harrison Aves., **WPA. $109,000.** A. N. Aitkin, city engr.

Pa., York—York Water Co., exten. c.i. watermains, Red Lion Rd. into town of Spry; south of here, own forces under supervision engineering staff. Over **$15,000.** CD 3/29—ENR 4/13.

★**R. I., Pawtucket**—Water Filtration Comn., Mayor T. P. McCoy, chn., City Hall, Contr. 3, water filtration plant, appurtenances, Happy Hollow Pond, Cumberland, to J. J. McHale & Sons, Inc., 90 Ferris St., **$466,180.** Est. $500,000. **PWA.** E. Harding, city engr. A. H. Lamarre, comr. P. Wks., City Hall. Bids 4/24. CD 4/4—ENR 4/6.

S. D., Java—Distr. sys., to Barnett & Record Co., 700 Flour Exch., Minneapolis, Minn., **$13,287,** Bids 4/10; pump, pump house and connections, to Fairbanks-Morse Co., 220 E. 5 St., St. Paul, **$1,730,** Bids 4/17. **PWA.** CD 4/11—ENR 4/13.

Tex., Beaumont — G. H. Petkovsek, mgr., City Hall, c.i. watermains in Tyrrell Park, "Purchase and Hire" plan. **$54,124. WPA.** E. Merritt, WW engr.

Tex., Cleburne—WW plant imprvs., new main line, distributing pipe, pumping plant imprvs., "Purchase and Hire" plan. **$15,382. WPA.**

Utah, Union—Salt Lake Co., imprv. and exten. water sys. in Union Area, **WPA. $73,466.** G. Haley, City and County Bldg., Salt Lake City, co. surv.

Wash., South Bend — Watermains, **WPA;** pipe, to Federal Pipe & Tank Co., 5332 24 Ave. N.W., Seattle, **$4,467.** Total est. $15,000. CD 2/8—ENR 2/16.

Wis., Milwaukee—Installing 30 M.G.D. motor driven pumping unit at Menomonee Valley Booster Station, to R. C. Borchard, 2308 W. Wisconsin Ave., **$31,770.** Bids 3/31. CD 3/21—ENR 3/23.

Ont., Arthur—Utilities Comn., F. Smith, secy., drilling well, to I. Lounsbury, 231 Mount Pleasant Ave., London, **$6** per foot, 8 in. casing, **$3.50** for 6 in. casings. CD 6/8—ENR 6/23.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

Ky., Middlesboro—Bids soon various sized sewers and complete sewage treatment plant. $400,000. PWA. J. S. Watkins, 610 Citizens Bank Bldg., Lexington, engr.

★**Mass., Boston**—Commonwealth of Massachusetts, Metropolitan Dist. Comn., W. E. Whittaker, secy., 20 Somerset St., preliminary plans, relief sewer, Woburn, ot connect with new North, Metropolitan Relief Sewer (now under construction). $500,000. J. P. Dever, ch. engr. Sewer Div.

Mo., Columbia — R. Barrett, mayor, bids early in May, sewage disposal plant complete with auxiliary equip., piping and appurtenances, etc. PWA. $135,000. W. M. Spann, Interstate Bldg., Kansas City, Mo., engrs. CD 2/8—ENR 2/16.

★**Mo., University City (St. Louis P.O.)**—M. C. Fogerty, mayor, 6801 Delmar Blvd., bids early in June, constructing River Des Peres drainage sys. from point 500 ft. west of Skinker Blvd. westward, to Harvard Ave. and Creve Couer street car tracks, etc. $700,000. PWA. W. W. Horner & H. Shifrin, International Office Bldg., 722 Chestnut St., St. Louis, consult. engrs. W. Heimbuecher, city engr.

N. Y., Rochester—Dpt. P. Wks., City Hall, sanitary and storm sewers, Glide St. Dist., in old R. L. & B. R.R. bed. $302,000. **Maturity later in 1939.**

O., Kenton—Hardin Co., sewers and imprv. streets in Kenton and nearby villages of Ada, Ridgeway, Dunkirk and Forest. $25,000. PWA. R. Harvey, Kenton, co. engr.

Okla., Waurika—C. S. Storma, mayor, sewage disposal plant. $40,000. C. Ferguson, Marlow, engr.

O., Avon Lake—Installing 1 mi. 36 in. and 1,200 ft. 30 in. storm sewer. $87,000. J. W. Warden, Elyria Blk., Elyria, engr.

O., New London—Intercepting and sanitary sewers and disposal plant. $132,500. Application made for WPA funds. G. E. Scott, 315 Citizens Bank Bldg., Norwalk, engr. CD 11/18—ENR 11/24.

O., Sandusky — L. J. Wagar, city mgr., 32x35 ft. brick, concrete incinerator plant. $25,000. A. Schmurr, Jr., 312 Lawrence St., archt.

O., Toledo—Intercepting sewer in Laskey Rd., **$360,310.** WPA funds applied for. J. N. Edy, city mgr.

O., Woodsfield—Sewer extens., sewage treatment plant. About $45,000. A. C. Milligan, mayor.

Okla., Ada—Sanitary main sewers Valley View Addn., $27,000. G. Toler, Ada, engr.

Pa., Wilson—Boro, J. B. Acton, secy., 1555 Northampton St., Easton, installing trunk line sewer, and connections to be made with Easton's lines at Wilson Boro-Easton city line. Total est. $300,000. Gannett, Eastman & Fleming, 600 N. 2 St., Harrisburg, engrs. Boro decided not to construct sewage disposal plant. CD 3/30—ENR 4/6.

Tenn., Etowah — F. Cantrell, mayor, completing sewerage sys. $62,000.

Alta., Hanna—Sewerage sys. $46,000. Haddin & Miles, Calgary, engrs. CD 3/1—ENR 3/9.

Ont., Swansea—N. L. Ivey, municipal clk., 83 De Forrest Rd., sanitary sewers various streets. $25,000. Private plans.

Ont., Orillia—G. G. Perryman, municipality cl., sewage disposal plant. $65,000. L. G. MacNiece, Town Hall, engr. CD 2/9—ENR 2/16.

Ont., Timmins—P. H. Murphy, cl., bids soon trunk sewers $16,547; lateral sewers $23,782. J. D. MacLean, Timmins, engr.

★**Que., Quebec City**—F. X. Chouinard, city cl. collector sewer Place d'Orleans to St. Lawrence River. $804,000. Cost to be divided equally between Dominion and Provincial Governments equally, plus $55,000 from city. E. Hamel, City Hall, engr.

BIDS ASKED

Bids Asked May 10

N. Y., Tarrytown—Mayor and Bd. Village Trustees, Village Hall, sewage treatment plant, appurtenances. $200,000. C. J. Kupper, 409 E. Main St., Bound Brook, N. J., consult. engr.; adv. ENR 5/4.

Bids Asked May 12

★**Minn., Bagley**—Sewers, treatment plant and lift station in connection with $92,500 PWA project. Druar & Milinowski, 830 Globe Bldg., St. Paul, engrs. CD 12/16.

O., Covington — Sewage disposal plant. $50,000. M. W. Tatlock, 911 Ferndale Ave., Dayton, consult. engr. CD 3/21—ENR 3/30.

R. I., North Providence—F. J. Kiernan, chn. Sewer Comn., Town Hall, Contr. 5, sewers. $180,000. PWA. C. A. Maguire, 613 Turks Head Bldg., Providence, engr. CD 4/5—ENR 4/13.

Bids Asked May 16

La., Baton Rouge—East Baton Rouge Parish Police Jury, Court House Bldg., 2 incinerators. $55,000. Overstreet & Town, Baton Rouge, engrs. CD 8/9—ENR 8/11.

Bids Asked May 19

D. C., Wash.—Dist. Comrs., District Bldg., Wash., D. C., outfall relief sewer, Sect. 2, from South Capitol St. to Howard Ave. S.E. through St. Elizabeth's Hospital and Old Bolling Field. PWA. G. M. Thornett, secy.; adv. ENR 5/4.

La., Metairie—Bd. Supervs. Sewerage Dist. 1, Jefferson Parish, sewage treatment plant. PWA. G. P. Rice, Baronne Bldg., New Orleans, engr.

Bids Asked May 22

N. Y., Tonawanda—City Clerk, City Hall, intercepting sewers. PWA. Metcalfe & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. C. S. Warren, mayor; adv. ENR 5/4. CD 3/17—ENR 3/23 under CA.

Bids Asked May 23

†**N. Y., Bath**—Veterans Administration, Arlington Bldg., Wash., D. C., addn. sewage disposal plant, at Veterans Administration Facility.

Bids Asked May 25

★†**South Carolina**—U. S. Eng., Customhouse, Charleston, dredging 4,970,000 cu. yd. from Intercoastal Waterway between Charleston and Beaufort. $600,000. 4/24—ENR 4//27.

Bids Asked June 1

†**W. Va., Ceredo-Kenova**—U. S. Eng., Chesapeake and Ohio Bldg., Huntington, sewage and storm water (propeller) pumps for local protection project; adv. ENR 5/4.

LOW BIDDERS

★**Ind., Gary**—R. E. Rowley, chn. Bd. Sanitary Comrs., City Hall, Contr. 1, general construction, incl. excavating, concrete work, furnishing, installing pipe, valves, fittings, in connection with sewage treatment plant and interceptor sewers, from Permanent Constr. Co., 208 S. LaSalle St., Chicago, Ill., $958,800. Est. $1,436,000. PWA. Bids 4/25. Alvord, Burdick & Howson, Civic Opera Bldg., Chicago, Ill., consult. engrs. CD 1/31—ENR 2/2.

CONTRACTS AWARDED

Conn., Bridgeport—Sanitary sewer, Sylvan Ave. **WPA. $35,010.** H. L. Rowland, City Hall, engr.

D. C., Wash.—Dist. Comrs., District Bldg., Wash., D. C., outfall relief sewer Bolling Field, D. C., to Diamond Constr. Co., 2620 E. St. N.W., **$423,116.** Bids 4/19, awarded 4/25. CD 3/28—ENR 3/30.

★**D. C., Wash.**—Dist. Comrs., District Bldg., Rock Creek diversion sewer (eastside Sect. 1 PWA), to J. Lombardi, 715 Real Estate Trust Bldg., Phila., Pa. **$544,223.** Bids 4/12, awarded 4/25. CD 3/17—ENR 3/23.

★**Ind., Fort Wayne**—Bd. P. Wks., Div. A, Contr. 4, Wayne St. Sect. main interceptor sewer, to Gargara Co., Inc., 4 E Seven Mile Rd., Detroit, Mich., **$866,538.** Bids 4/18, awarded 4/22. **PWA.** CD 4/21—ENR 4/27.

Mass., Lexington—At office Bd. Selectmen, A. R. Giroux, chn., Town Office Bldg., Contr. B, open channel, drain, earthen dam and appurtenances in connection with Vine Brook drainage project, to Lee Constr. Co., 260 Park Sq. Bldg., Boston, **$108,639. PWA.** Bids 4/20, awarded 4/26. CD 4/4—ENR 4/6.

Mass., Mansfield — W. I. McDermott, chn. Bd. Selectmen, Town Hall, Contr. 5, sewer connections, to Germaine & Conti, 5 Lafayette St., North Attleboro, **$27,625. PWA.** Bids 4/18. CD 4/6—ENR 4/13.

Mass., Springfield — Bd. Supervs. Dpt. Streets & Eng., C. W. Phillips, supt., Administration Bldg., Contr. 4, Mill St. overflow sewer, structures, to Deliso Constr. Co., 53 Suthpin Blvd., Jamaica, N. Y., **$31,974. PWA.** Bids 4/24, awarded 4/26. CD 4/11—ENR 4/13.

Mich., Rochester—S. Q. Ennis, village clk., Contr. 3, sewage treatment plant, to A. A. Smith, 421 Penobscot Bldg., Detroit, **$54,779. PWA.** Bids 4/24. CD 4/4—ENR 4/6.

Minn., Goodhue—Sewers and disposal plant, to Lee & Nodland, Starbuck, **$45,608.** Former contract rescinded. Bids 3/17. CD 3/29—ENR 4/6, under C.A.

Minn., Hibbing—Sect. C, sewage treatment plant, to E. W. Coons Co., Hibbing, **$298,270.** Bids 3/28. CD 3/16—ENR 3/23.

Minn., Mabel — Sewage plant, to G. M. Melby, Mabel, **$19,175. PWA.** Bids 4/18. CD 4/4—ENR 4/6.

Mo., Ferguson (St. Louis P.O.)—Ferguson Sew. Dist., furnishing, supervising installation raw sewage screening or shredding equip., raw sewage pumps, raw sewage flow meter, primary sludge pump, activated sludge pump or pumps, primary, settling tank, equip., etc., to Foster Mchy. Co. (Chicago Pump. Co.), 4903 Delmar Blvd., St. Louis, approx. **$20,000.** Bids 3/28. CD 3/24.

Mo., University City (St. Louis P. O.)—A. J. Schopp, acting city clk., City Hall, 6801 Delmar Blvd., Sect. 1, Rock Island relief sewer, etc., to Fruin-Colnon Contg. Co., 502 Merchants Laclede Bldg., St. Louis, **$194,134.** Award subject to **PWA** approval. Bids 4/19. CD 4/7—ENR 4/13.

Mont., Lewiston—Sewage disposal plant, to Herfert Constr. Co., Lewiston, **$58,293. PWA.** Bids 4/20. CD 4/12.

Neb., Elgin—G. A. Ward, city clk., sewers, **WPA. $36,690.**

N. J., Passaic — Storm sewers River Dr., Falsom and Gregory Aves., **WPA. $26,161.** CD 3/1—ENR 3/9.

N. J., Trenton—Hamilton Twp. Com., 2090 Greenwood Ave., trunk and lateral sewers, 8- to 42-in. pipe, 4 pump. stations, to Spinello Constr. Co., 437 Riverside Ave., Newark, **$478,900.** Bids 4/25. CD 4/14—ENR 4/20.

N. Y., Beekman—At office Dpt. Correction, J. A. Lyons, comr., State Office Bldg., Albany, sewage disposal plant at Green Haven prison, to Corigliano Bros., 56 Sherwood Ave., Ossining, **$172,979.** Bids 4/11, awarded 4/25. CD 3/21—ENR 3/23.

N. Y., Buffalo—Laying storm sewer in connection with Perry Blvd. construction. **WPA. $91,928.**

N. Y., Buffalo—Buffalo Sewer Auth., laying sanitary sewers, Mystic and Abby Sts., South Buffalo. **WPA, $28,764.**

N. Y., Fulton — Laying concrete storm sewer, S. 2 St. **WPA. $27,667.**

N. Y., Yonkers—Bd. Contr. & Supply, City Hall, house and storm water sewer, Byron Ave., etc., to G. Sylvestri, 1 Lawton St., **$19,295. PWA.** Bids 4/6. CD 3/28—ENR 3/30.

O., Ashland—W. A. Mason, dir. Pub. Serv., sewage treatment plant, Contr. 2, to Steinle-Wolfe Inc., 1515 Croghan St., Fremont, **$154,795,** Est. $157,000. Subject to **PWA** approval. Bids 4/22. CD 4/5—ENR 4/13.

O., Piqua—Sewage disposal plant, to Detroit Underpinning Co., 9124 Alpine St., Detroit, Mich., **$134,565.** Est. $185,000. Bids 4/15. CD 4/11.

Pa., Clarion—Boro, W. B. Edwards, secy., Contr. 5, outfall sewer and appurtenances, to Keystone Constr. Co., 131 Mead Ave., Meadville, **$13,000.** Total est. $87,000. **PWA.** Bids 4/21. CD 4/11—ENR 4/13.

Pa., Nanticoe—Sanitary sewers, Bspey, Center and other streets, own forces. **$25,000.** City Eng. Bureau, Nanticoe, engrs. CD 4/17—ENR 4/20.

Pa., Pittsburgh—F. M. Roessing, dir. P. Wks., Contr. 2, relief sewers, 3 St. drainage basin, to Shullo Constr. Co., 5 Ave., McKeesport, **$69,474.** Bids 4/4. CD 3/30.

Pa., Sharon—At office F. S. Williams, city clk., Municipal Bldg., city-wide sanitary and storm water sewer, to Christopher Constr. Co., Chagrin Falls, O., **$116,122.** Bids 4/25, awarded 4/25. CD 4/4—ENR 4/6.

Tex., Lufkin—Angelina Co., c/o Judge, dismantling present insanitary units and installing sanitary devices in certain rural communities, "Purchase and Hire" plan. **$26,200. WPA.**

Tex., Uvalde—J. H. Ashby, Jr., mayor, sewage plant imprvs. Owner builds, "Purchase and Hire" plan. **$25,000.**

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

LONG VALLEY DAM, CALIF.

OWNER: Los Angeles Bureau of Water Works and Supply; H. A. Van Norman, engineer; R. R. Proctor, field engineer.

PROJECT: Construction of Long Valley Dam and appurtenant structures, including diversion tunnel, spillway tunnel, outlet tunnel and outlet control shaft. Dam is to be rock fill with earth core, 540 ft. long and 182 ft. maximum height. Extreme thickness is 850 ft. Dam is to be located on Owens River, Mono County, about 300 miles from Los Angeles.

CONDITIONS: Construction camp is already built by owner; owner also provides use of equipment including two "50-B" Bucyrus-Erie shovels, electric power and cement; aggregates for concrete are available at the site. Owner has already begun project, having practically completed excavation for the dam. Diversion and spillway tunnels have been excavated and partly lined. The dam site is at an elevation of approximately 6,500 ft. in a narrow rock gorge, about 2½ miles off a state highway. All transportation is by highway. Stipulated contract time is 450 calendar days, although the time limit does not include a period from about Dec. 1 to Apr. 1, when heavy snows and temperatures as low as —22 deg. F. preclude work. Early advent of winter will permit extension of time into a third season.

BIDS: Twelve bids were received Apr. 18, 1939, ranging from the contract low of $631,671 to $946,604. These bids cover 17 schedules for various departments of work. Labor rates are as follows: skilled, $1.375 per hr.; semi-skilled, 75c. per hr.; common, 62½c. per hr.

LOW BIDDERS:

1. J. F. Shea Co., Los Angeles (contract)..... $631,671
2. Eaton & Smith, San Francisco..... 652,585
3. Basich Bros., Torrance, Calif..... 660,477

Item	Quan.	Unit Prices (1)	(2)	(3)
Schedule 1				
Stream Control During Construction				
1. Constr. and maintenance of stream flow diversion works and repairs of damage resulting from inadequacy thereof...	L. S.	$5,000.00	$1,000.00	$36,000.00
Schedule 2				
Dewatering of dam site and protection of concrete slab and earth fill against damage from uplift of seepage water.				
2. Installation, maintenance and operation of pumping facilities for removal of water from the foundation of the dam during the constr. period.....	L. S.	17,000.00	1,000.00	18,000.00
Schedule 11				
Constr. of drainage system for dam foundation and subsequent closure thereof by pressure grouting.				
3. Excav., ditches and drains.....	1,000 c. y.	3.00	1.00	5.00
4. Filling ditches and drains with gravel..	100 c. y.	2.50	1.00	2.50
5. Conc., unreinf., for drain plugs.....	100 c. y.	7.00	8.00	5.00
6. 10-in drain tile.....	1,000 l. f.	.75	.60	1.35
7. 4-in drain tile.....	300 l. f.	.50	.25	.76
8. 1-in black pipe.....	1,000 l. f.	.50	.30	.23
9. 2-in black pipe.....	1,000 l. f.	.60	.45	.56
10. 4-in black pipe.....	1,000 l. f.	1.25	.97	1.77
11. Gravity grouting.....	2,000 c. f.	.50	.75	.48
12. Pressure grouting.....	200 c. f.	.75	.20	.48
13. Pressure grouting equip., rental.....	8 hrs.	3.50	8.00	2.50
Schedule 12				
Completion of excavation for dam foundation.				
14. Excav. common.....	20,000 c. y.	2.00	.50	.40
15. Trimming rock.....	10,000 c. y.	6.00	1.25	1.50
Schedule 13				
Completion of cut-off wall				
16. Excav. of rock.....	1,400 c. y.	4.00	2.00	3.84
17. Unreinf. conc.....	1,100 c. y.	7.00	7.00	8.00
18. Drilling from 0-ft depth to 25-ft depth..	1,920 l. f.	1.25	1.50	1.42
19. Drilling from 25-ft depth to 50-ft depth.	3,200 l. f.	1.50	1.50	1.72
20. Drilling from 50-ft depth to 100-ft depth.	4,800 l. f.	2.00	2.00	2.05
21. Drilling from 100-ft depth.....	3,200 l. f.	2.00	2.25	2.36
22. Drilling from 150-ft depth to 200-ft depth.	1,600 l. f.	2.25	3.00	3.20
23. Drilling from 200-ft depth to 250-ft depth.	300 l. f.	2.50	3.50	3.20
24. Drilling from 250-ft depth to 300-ft depth.	300 l. f.	3.00	4.00	3.81
25. Drilling from 300-ft to 450-ft depth....	700 l. f.	3.50	4.00	4.50
26. Furnish and install 4-in grout pipe.....	1,280 l. f.	1.25	.75	1.72
27. Gravity grouting.....	15,000 c. f.	.50	.75	.49
28. Pressure grouting.....	10,000 c. f.	.75	.20	.49
29. Pressure grouting equip. rental.....	400 hrs.	3.50	8.00	2.56
Schedule 14				
Constr. of reinf. coner. slab — dam foundation				
30. Unreinf. conc.....	500 c. y.	5.50	7.00	6.20
31. Reinf. conc.....	1,600 c. y.	8.25	8.00	7.10
32. Reinf.....	10,000 lb.	.05	.0325	.058
33. Installing reinf. furnished by dept.....	168,000 lb.	.02	.01	.013
Schedule 15				
Construction of Gunite slab — dam abutments				
34. Conc.— Gunite.....	1,500 c. y.	16.00	5.25	9.00
Schedule 16				
Dam embankments				
35. Rock blankets — selected.....	30,000 c. y.	1.05	1.06	1.28
36. Rock blankets — quarry run.....	55,000 c. y.	.85	.76	.80
37. Material for filling voids in rock rip-rap —sluiced.....	25,000 c. y.	.35	.61	.45
38. Compacted pervious earth fill.....	100,000 c. y.	.20	.44	.30
39. Sluiced pervious earth fill.....	125,000 c. y.	.20	.46	.28
40. Compacted impervious earth fill.....	735,000 c. y.	.24	.41	.32
41. Unsuitable material wasted from borrow pit.....	20,000 c. y.	.15	.15	.15
Schedule 17				
Dam embankment crest surfacing				
42. Dam embank. crest surf.....	1,000 s. y.	.80	.36	.64
Schedule 21				
Completion of side channel spillway forebay.				
43. Trimming, Sta. 10 plus 00 to Sta. 11 plus 39.....	600 c. y.	2.50	.75	5.00
44. Reinf. conc., Sta 10 plus 00 to Sta. 11 plus 39.....	660 c. y.	21.00	12.00	17.40
45. Reinf.....	80,000 lb.	.055	.03	.057
46. Drilling from 0-ft depth to 25-ft depth..	450 l. f.	1.50	1.50	1.42
47. Drilling from 25-ft depth to 50-ft depth.	150 l. f.	1.75	1.50	1.72
48. Drilling holes for and installing anchor rods.....	480 l. f.	.50	1.50	2.56
49. 2-in grout pipes.....	50 l. f.	1.00	.45	1.00
50. 4-in grout pipes.....	180 l. f.	2.25	.97	1.70
51. Gravity grouting.....	15,000 c. f.	.50	.75	.49
52. Pressure grouting.....	3,000 c. f.	.75	.20	.49
53. Pressure grouting equipment rental.....	120 hrs.	3.50	8.00	2.56
54. Walk railing.....	L. S.	350.00	500.00	420.00
55. Safety ladder complete, to Sta. 12 plus 35.....	L. S.	150.00	350.00	184.00
Schedule 22				
Completion of side channel spillway transition and circular section, 11 plus 39 to 12 plus 31.				
56. Reinf. conc.....	400 c. y.	22.00	12.00	23.00
57. Reinf.....	26,000 lb.	.055	.03	.057
58. Drilling holes for and installing anchor rods.....	50 l. f.	.50	1.50	2.56
59. 2-in. grout pipe.....	50 l. f.	1.25	.45	1.00
60. Pressure grouting.....	1,500 c. f.	.75	.20	.49
61. Pressure grouting equipment, rental....	60 hrs.	3.50	8.00	2.56
Schedule 23				
Completion of diversion tunnel				
62. Reinf. conc., Sta. 11 plus 74 to Sta. 11 plus 99.....	60 c. y.	21.00	12.00	19.20
63. Reinf.....	500 lb.	.055	.03	.064
64. 2-in grout pipes.....	25 l. f.	1.25	.45	1.00
65. Pressure grouting.....	1,500 c. f.	.75	.20	.49
66. Pressure grouting equipment, rental....	60 hrs.	3.50	8.00	2.56
67. Sluice gate, install, 4x5-ft. stem, operating stand, operating stand conc. base, and all appurtenances, furnished by dept.....	L. S.	2,000.00	2,500.00	768.00
Schedule 24				
Completion of diversion tunnel intake				
68. Excav. for settling basin.....	300 c. y.	.25	.75	.76
69. Reinf. conc.— end wall.....	5 c. y.	15.00	12.00	25.60
70. Reinf.....	1,000 lb.	.055	.03	.064
Schedule 25				
Construction of apron end ditch at east portal of spillway and diversion tunnel				
71. Excav. for ditch.....	10,750 c. y.	.14	.30	.40
72. Reinf. conc. apron and cutoff wall.....	50 c. y.	15.00	9.00	21.00
73. Reinf.....	4,000 lb.	.055	.03	.057
74. Drilling holes for installing anchor rods.	220 l. f.	.50	1.50	2.55
Schedule 26				
Completion grouting of tunnel lining				
75. Pressure grouting.....	3,000 c. f.	.75	.20	.64
76. Pressure grouting equipment, rental....	120 hr.	3.50	8.00	2.55
Schedule 31				
Completing outlet control shaft				
77. Excav. in shaft.....	1,360 c. y.	10.50	2.00	5.60
78. Reinf. conc.....	710 c. y.	22.50	10.00	19.00
79. Reinf.....	80,000 lb.	.055	.03	.057
80. Ladder complete.....	L. S.	1,100.00	300.00	1,580.00
81. Installing 54-in plug valve and fittings furnished by the dept.....	L. S.	4,000.00	2,000.00	2,560.00
Schedule 32				
Construction of outlet control shaft house				
82. Constr. of valve control shaft house....	L. S.	5,500.00	4,000.00	10,240.00

(Contract Unit Prices continued on second following page)

Sewers, etc. (Continued)

Wis., Two Rivers—Elevated steel tower, to Pittsburgh-Des Moines Steel Co., 38 S. Dearborn St., Chicago, Ill. **$38,960;** sewage disposal plant, to F. G. Robers Constr. Co., Burlington, **$156,290. PWA.** Bids 4/20. CD 4/6—ENR 4/13.

BRIDGES, GRADE CROSSINGS

PROPOSED WORK

Illinois—State Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield, overhead bridge over Chicago N.W. R.R. tracks, F.A. Route 141, Whiteside Co.; overcrossing over tracks Illinois Terminal, N. Y. Central, operating the Peoria & Eastern and New York Chicago and St. L. R.R., F.A. Route 5; subway under tracks Illinois Central R.R. at crossing F.A. Route 141. E. Lieberman, Centennial Bldg., archt.

Ill., Edwardsville — Madison Co., 2 steel I-beam bridges on S.A. Route 7. G. H. Baker, Centennial Bldg., Springfield, state engr. co. roads and city streets.

Ill., Joliet—Will Co., c/o Bd. Supervs., Court House, bids soon, bridge across south branch Hickory Creek, SAR 47, Sect. 57 B-15D, 50 ft. span $12,000; bridge over Union Drainage Ditch, SAR 2, Sect. 102 B-15D $6,000; bridge across Sugar Creek, SAR 51, Sect. 47 B-15D $20,000. G. H. Fletcher, Court House, supt. Co. Hy. Dpt.

Ill., Taylorville—Christian Co., bridge over south fork Sangamon River on State Aid Route 5. $50,000. G. H. Baker, Centennial Bldg., Springfield, state engr. co. roads and city streets.

Iowa—State Hy. Comn., Ames, 3 concrete box culvert extens., County Trunk Rd. C, north of Garner, FAS 139, Hancock Co.; 32x24 ft. I-beam bridge, 1 concrete box culvert and 1 concrete box culvert exten., FAS 140, Hancock Co. F. R. White, Ames. ch. engr.

Kan., Leavenworth—Leavenworth Co., steel, concrete bridge over Big Stranger Creek. $43,000. H. Simpson, co. engr.

N. Y., Adams—State Dpt. P. Wks., State Bldg., Albany, bids soon steel, concrete grade crossing elimination, Church St., for New York Central R.R. $136,000. Financing arranged.

N. Y., Amenia—State Dpt. P. Wks., State Bldg., Albany, bids soon steel, concrete grade crossing elimination for New York Central R.R. $90,000. Financing arranged.

N. Y., Annsville—Bd. Supervs. Oneida Co., Court House, Utica, 150 ft. steel, concrete bridge over Fish Creek. Over $25,000. W. J. O'Brien, hy. supt.

N. Y., Boonville—Bd. Supervs. Oneida Co., Court House, Utica, replacing steel, concrete, Point Rock bridge over Fish Creek. $30,000. **Maturity soon.** W. J. O'Brien, Utica, co. hy. supt.

N. Y., Cheektowaga—New York Central R.R. Co., 466 Lexington Ave., New York, J. W. Pfau, ch. engr., revised plans, grade crossing elimination of Union Rd. and Walden Ave. crossings. Est. $411,000. $64,000 of work by own forces.

N. Y., Chenango Bridge—State Dpt. P. Wks., State Bldg., Albany, bids soon, steel, concrete grade crossing elimination. Est. $126,000. Financing complete.

N. Y., Dansville—State Dpt. P. Wks., Div. Hys., State Bldg., Albany, bids soon steel, concrete grade crossing elimination over D. L. and W. R.R. tracks. Financing arranged.

★**N. Y., Dunkirk**—State Dpt. P. Wks., Div. Hys., State Bldg., Albany, steel, concrete grade crossing elimination over tracks of New York Central and Pennsylvania Railroads. $600,000.

N. Y., East Fishkill—State Dpt. P. Wks., State Bldg., Albany, bids soon steel, concrete grade crossing elimination, for New York, New Haven & Hartford R. R. Co. $100,000.

N. Y., Hastings—New York Central R. R. Co., J. W. Pfau, ch. engr., 466 Lexington Ave., New York, grade crossing elimination at Jackson Ave. $236,000. Financing completed. **Maturity later in 1939.** Award to be made by either owners or State Dpt. P. Wks., Albany, as directed by Pub. Serv. Comn.

N. Y., Herkimer—State Dpt. P. Wks., State Bldg., Albany, grade crossing elimination, Main St. Over $150,000. District Engineer, c/o owner, N. Genesee St., Utica, engr.

N. Y., Hornell—Common Council approved construction approaches to Cedar St., Main St., Chauncey Run and Seneca St. Bridges, also construction 2 steel bridges over Canacadea Creek at Bennett and at Church Sts. Total est. $54,000. Engineer, c/o owner, engr. To be financed by bond issue. CD 4/12—ENR 4/20.

N. Y., Horseheads—State Dpt. P. Wks., State Bldg., Albany, steel, concrete grade elimination. Over $100,000. Bids later 1939. Site being cleared.

N. Y., Oswego—State Dpt. P. Wks., Div. Hys, State Bldg., Albany, bids soon steel, concrete grade crossing elimination over New York, Ontario & Western R.R. tracks. $132,000. Financing arranged.

N. Y., Patterson—State Dpt. P. Wks., State Bldg., Albany, bids soon steel, concrete grade crossing eliminaion, Main St., for New York Central R.R. $150,000. Financing arranged.

N. Y., Rochester—Lehigh Valley R.R. Co., 143 Liberty St., New York, E. J. Cullen, ch. engr., Bethlehem, Pa., remodeling steel railroad bridge at River Campus. Over $25,000.

N. Y., Seneca—State Dpt. P. Wks., Div. Hys., State Bldg., Albany, steel, concrete grade crossing elimination over tracks of Pennsylvania R. R. at Main St. $100,000.

N. Y., Utica—Bd. Supervs. Oneida Co. Court House, steel, concrete bridges over Mad River, at Florence Hill, bridge over Kent Creek, Boonville, and County Line bridge over Oneida Creek, near here. $26,000. **Maturity soon.** W. J. O'Brien, co. hy. supt.

N. Y., West Seneca—State Dpt. P. Wks., Div. Hys., Albany, bids soon steel, concrete grade crossing elimination for Lehigh Valley R. R. Co., Ridge Rd. Over $100,000.

Ohio—State Hy. Dpt., Columbus, bids soon railroad underpass moving and reconstruction S.H. 33, at west end of Fifth Ave. at Dublin Rd. and main line of Pennsylvania R.R. $125,000.

O., Cleveland—State, R. S. Beightler, dir. Hys., 2 steel, concrete bridges, Clifton Blvd. and Edgewater Park along Bulkley Blvd. $190,000. J. O. McWilliams, Standard Bldg., co. engr.

O., Lorain—Underpass on Kansas Ave. at Nickel Plate R.R. $150,000. H. F. Alexander, city engr.

Okla., Alva—State Hy. Dpt., V. T. Moon, engr., Capitol, Oklahoma City, concrete overpass over Santa Fe Ry., west of here. $45,000.

Okla., Cherokee—I. Hill, mayor, and Sante Fe Ry., concrete bridge and combination culvert under Main St. $28,000. C. H. Guernsey, Cherokee, engr.

Okla., Duncan—Stephens Co., 6 span, 180 ft. I-beam bridge, concrete piers. $27,000. C. Ferguson, Marlow, engr.

Okla., Stratford—State Hy. Dpt., Oklahoma City, 260 ft. I-beam bridge, near here, Pontotoc Co. $28,000. V. T. Moon, Capitol, Oklahoma City, engr.

Pa., Allentown—M. W. Gross, mayor, steel, concrete highway bridge, to link 7 and Union Sts. Over $50,000. E. Meckley, city hall, city engr.

Pa., Enterprise—State Hy. Dpt., Harrisburg, 2 span, steel, concrete hy. bridge, near here. $25,000-$30,000. S. I. Jackson, Franklin, dist. engr. State Hy. Dpt.

Que., Lennoxville—Provincial Government, Quebec City, replacing covered timber bridge with 40 ft. timber bridge over Salmon River. $25,000. Dpt. P. Wks., Quebec City, engrs.

Que., St. Clement—Provincial Government, Quebec City, removing old and erecting steel, concrete bridge. $22,000. Dpt. Roads, Quebec City, engrs.

BIDS ASKED

Bids Asked May 8

N. Y., New York—Dpt. P. Wks., Municipal Bldg., making borings for new Unionport Bridge over Westchester Creek, Bronx Boro.

Bids Asked May 9

Iowa—State Hy. Comn., Ames, 429x24 ft. multiple span continuous truss bridge, U.S. 20 at I.C. R.R. crossing, west of Dubuque, FAGH 305, Dubuque Co.; 6 concrete box culverts and extens., S.H. 117 from Jasper Co. line north through Collins, FA 72 AF, Story Co., $50,000. F. R. White, Ames, ch. engr.

Maryland—State Roads Comn., Baltimore, steel pony truss bridge over Potomac River, (incl. removal present steel trusses), Contr. G-178-650 and G-179-611, Garrett Co.

Virginia—State Dpt. Hys., Richmond, 1.2 mi. rein.-con. bridge and overpass R.F. & P. R.R. Route 1, Hanover Co.; underpass and approaches Southern Ry., Route 58, Mecklenburg Co.; bridge and approaches Route 622, Amhurst Co.

Wisconsin—State Hy. Comn., Eau Claire, cleaning, repainting Eau Claire River Bridge, Taylor Co.

Bids Asked May 11

Colorado—State Hy. Dpt., Denver, 5 bridges, 1 culvert, with gravel surfaced approaches, 1.325 mi. S.H. 8, between Aurora and Watkins, Adams and Arapahoe Counties; gravel surfacing 1.487 mi. S.H. 83, between Parker and Franktown, Douglas Co.

Bids Asked May 12

Minnesota—State Hy. Dpt., J. T. Ellison, ch. engr., 1246 University Ave., St. Paul, Bridge 5848, 125 ft. over Crystal Creek, Caledonia Co.; Bridge 5664, 480 ft. over Great Northern R.R., St. Paul, Ramsey Co.

New York—Dpt. Parks, R. Moses, comr., Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York, grade separation at Rockaway Parkway, paving from Flatbush Ave. to Pennsylvania Ave., Brooklyn Boro, Contr. MS-39-12.

Wisconsin—State Hy. Comn., Superior, cleaning, repainting Deer Tail Bridge, Rusk Co.

Bids Asked May 15

Calif., Murietta—Clerk Riverside Co., Riverside, rein.-con. slab bridge over Murietta Creek, Washington St.

Bids Asked May 16

Kansas—State Hy. Dpt., Topeka, Bridge 26E-12-13, steel beam span concrete substructure on piles; Bridge 10 E-15-15, FAS 78 A, steel beam spans; Bridge 36E-14-13, steel beam spans; Bridge 32E-14-13 FAS 65 B, all foregoing Russell Co.

N. Y., Buffalo—Bd. Supply, Erie Co., County Hall, 144 ft. steel, truss bridge, concrete abutments, over Niagara River, between Clarence and Lockport.

Bids Asked May 18

Calif., Los Angeles—C. H. Purcell, engr. State Hy. Dpt., 808 State Bldg., rein.-con. girder bridge, Arroyo Seco Parkway, at Avenue 43. Over $25,000.

Bids Asked May 19

Miss., Natchez—W. J. Byrne, mayor, superstructure Mississippi River Bridge, Natchez, Miss., to Vidalia, La. PWA. Ash, Howard, Needles & Tammen, 55 Liberty St., New York, and 1012 Baltimore St., Kansas City, Mo., consult. engrs.; adv. ENR 5/4.

Ohio—State Hy. Dpt., Columbus, structure Bridge LO-10-132 part Sect. G, S.H. 694. $4,913; continuous concrete slab bridge over Salt Fork Creek, 0.132 mi. Sect. D, S.H. 605, Guernsey Co., $7,983; rebuilding existing stone abutments and steel, timber superstructure, Bridge 77-81, Sect. new milage, S.H. 589, Holmes Co., $3,146; slab top culvert Sect. R, S.H. 23, U.S. 62, Holmes Co., $1,999.

Bids Asked May 23

★**O., Lorain**—Bd. Comrs. Lorain Co., F. C. Ruth, clk., Contr. 5, superstructure for E. Erie Ave. Bridge, $600,000. PWA. W. Watson & Assoc., 4614 Prospect Ave., Cleveland, consult. engrs. H. L. Dunham, Courthouse, co. engr. CD 9/2—ENR 9/8.

Bids Asked May 24

†**Md., Fort George Mead**—Con. Q. M., Holabird Depot, Baltimore, Md., Laurel Rd. bridge and approaches; adv. ENR 5/4.

Bids Asked May 25

†**Tennessee**—At Office Public Roads, Gatlinburg, stone faced, rein.-con. rigid frame bridge 3B3, Great Smoky Mountain Natl. Park, Blount Co.; adv. ENR 5/4.

LOW BIDDERS

★**N. Y., Brooklyn**—Dpt. Parks, R. Moses, comr., Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York, Apr. 27, substructure, Mill Basin Bridge, contr. M.S. 39-3B, Shore Parkway, from P. J. Carlin Constr. Corp., 405 Lexington Ave., New York, $721,557. CD 4/17—ENR 4/20.

N. Y., Tottenville—H. A. Lane, ch. engr. Baltimore & Ohio R.R. at office asst. engineer, Staten Island Rapid Transit Ry. Co., Springstead Bldg., Great Kills, Apr. 24, general contract grade crossing elimination, from Certified Constr. Co., Bay St., and M. L. Klostegard, 4 Coddington Ave., both Staten Island, $447,930, est. $360,000. PWA. CD 4/6—ENR 4/13.

CONTRACTS AWARDED

California—C. H. Purcell, engr. State Hy. Dpt., P. Wks. Bldg., Sacramento, rein.-con. viaduct, between Lake St. and Golden Gate Bridge approach, San Francisco, to Union Paving Co., 310 California St., San Francisco, **$54,441.** Bids 4/5. CD 3/20—ENR 3/23.

California—C. H. Purcell, engr. State Hy. Dpt., P. Wks. Bldg., Sacramento, rein.-con. continuous slab bridge, Tulare Co., to Trewhitt-Shields & Fisher, 1501 Pacific Southwest Bldg., Fresno, **$33,492.** Bids 4/12. CD 3/27—ENR 3/30.

Calif., Los Angeles—Bd. P. Wks., widening bridge over Los Angeles River, Spring St., to Contracting Engineers Co., 2310½ W. Vernon Ave., **$12,448.** Est. $30,000. **PWA** Bids 3/8. CD 2/24.

D. C., Wash.—District Comrs., District Bldg., Taylor St. viaduct, to eliminate Bates St. (N.E.) grade crossing, to H. R. Dickens Co., 1700 Walnut St., Phila., Pa., **$222,433.** Bids 4/11, awarded 4/25. CD 3/14—ENR 3/16.

Ill., Peoria—Peoria Co., Courthouse, steel W.F. beam bridge, Sect. 37 B-MFT, and rein.-con. box culvert Sect. 37C-MFT, to Schmitt Constr. Co., Peoria, **$7,894** and **$2,116** respectively***binder gravel, to C. L. Swords, Peoria, **$19,120.** Grand total $29,130. Bids 4/5. Rejected bids 4/5, 31 ft. steel W.F. beam bridge Sect. 56 B-MFT. CD 4/4.

Mass., Lawrence — Bridges over Spicket River, Garden St., and over North Canal, Union St., to L. C. Cyr, 45 Melrose St., **$61,200.** Est. $70,000. **PWA.** Bids asked and awarded 4/24. CD 4/13—ENR 4/20.

Nevada—R. A. Allen, engr. State Hy. Dpt., Carson City, concrete steel underpass, Clark Co., to Silver State Constr. Co., Inc., Fallon, **$41,448.** Bids 4/20. CD 4/10—ENR 4/13.

New Jersey—E. D. Sterner, comr. State Hy. Dpt., Trenton, bridge and approaches to carry Preakness Ave. across tracks of D. L. & W. R.R., Passaic Co., to Tidewater Stone & Supply Co., 65 Court St., Hackensack, **$115,376.** Bids 4/14. CD 3/28—ENR 3/30.

New York—Dpt. Parks, Arsenal Bldg., Central Park, 5 Ave. and 64 St., New York, R. Moses, comr., constructing Cross Island Parkway, separation of grades, at Hempstead

(Contract Unit Prices continued from page 12)

HIGHWAY TUNNEL, PA.

OWNER: Pennsylvania Turnpike Commission; J. D. Faller, secretary-treasurer, Harrisburg; Samuel W. Marshall, engineer.

PROJECT: Construction of Sideling Hill Tunnel, Contract S2, Wells and Taylor Townships, Fulton County. Total length of tunnel will be 6,626 ft. Builders of the South Penn Railroad had drilled 3,247 ft.—1,200 ft. for double track, and 2,047 ft. for single track. Sections of existing tunnel were opened to inspection prior to bidding. Stipulated contract time is 315 days.

BIDS: Eight bids were received Mar. 30, 1939, ranging from the contract low of $2,444,527 to $3,467,834. Minimum wage rates are as follows: skilled, $1.00 per hr.; semi-skilled, 65c. per hr.; common, 52½c. per hr.

LOW BIDDERS:

1. The Arundel Corp., Baltimore (contract).. $2,444,527
2. The Hunkin Conkey Construction Co., Cleveland 2,678,278
3. Mason & Hanger Co., Inc., New York, N. Y. 2,707,451

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Excav. loose lat. previously driv. area	12,800 c. y.	$2.00	$4.00	$7.00
2. Excav. of tunnel in prev. undriv. area	93,000 c. y.	5.70	6.05	7.00
3. Excav. of tunnel in prev. driven area	31,200 c. y.	5.70	11.39	7.00
4. Excav. enlargement of tunnel-order.-eng	1,000 c. y.	5.70	10.00	7.00
5. Open cut tunnel excav	25,000 c. y.	0.55	4.00	1.50
6. Permanent timbering in tunnel	100 M.b.m.	60.00	75.00	120.00
7. Permanent timber logging	150 M.b.m.	60.00	100.00	120.00
8. Conc. masonry — tunnel lining	34,600 c. y.	16.00	13.53	11.00
9. Conc. masonry — tunnel ceiling	3,400 c. y.	26.00	20.55	20.00
10. Conc. masonry — pave.	16,920 s. y.	3.60	3.56	4.00
11. Conc. masonry — type 1 curbing	6,622 l. f.	1.30	1.20	1.00
12. Conc. masonry — type 2 curbing	6,222 l. f.	1.50	1.42	1.00
13. Conc. masonry — sidewalk	1,420 s. y.	2.00	2.28	2.00
14. Conc. masonry — lodges	13,244 l. f.	1.00	1.50	1.00
15. Conc. mason.— encasement high tens. ducts	6,622 l. f.	1.50	1.08	0.50
16. Conc. and precast conc. mason.— drain. gally	6,540 l. f.	12.00	8.25	13.00
17. Grout	2,650 c. y.	13.00	15.00	15.00
18. Pneu.—applied sand—cem. mortar	100 c. y.	30.00	25.00	16.00
19. Sand for grout	300 c. y.	5.00	5.05	5.00
20. Portland cement	91,100 bbl.	2.40	2.00	2.80
21. Stone fill	4,500 c. y.	2.00	4.00	4.00
22. Subbase material	8,080 c. y.	1.85	1.75	2.00
23. Subgrade material	4,050 c. y.	3.10	2.00	2.00
24. Steel arch pipe, sills and columns	950,000 lb.	0.04	0.047	0.07
25. Steel beam lagging supp. and coil. angles	396,000 lb.	0.04	0.08	0.06
26. High tensile steel bolts	1,500 lb.	0.25	0.30	0.20
27. Misc. steel	41,000 lb.	0.12	0.15	0.20
28. Steel plate tunnel lining	20,000 s. f.	0.50	0.80	0.80
29. Wrought iron rungs	380 lb.	0.12	0.25	0.10
30. Compressed air lines	5,000 l. f.	0.50	0.60	1.00
31. Inlet castings	40,400 lb.	0.11	0.125	0.20
32. Cast steel hanger supports	15,000 lb.	0.18	0.19	0.60
33. Reinforcing rods	1,830,000 lb.	0.06	0.038	0.05
34. Wire mesh	447,000 lb.	0.06	0.072	0.08
35. Ceiling hangers	4,900 l. f.	2.00	2.25	2.50
36. Water stops	43,600 s. f.	0.70	0.90	1.00
37. Copper, brass and bronze	10,700 lb.	0.60	0.80	1.00
38. Cast iron pipe	10,300 lb.	0.12	0.07	0.20
39. Pressure pipe, 5-in	6,590 l. f.	1.50	1.50	2.40
40. Pipe drain, 2-in	3,300 l. f.	0.65	0.94	1.00
41. Brass valves	68 ea.	16.300	16.300	20.00
42. Ducts, 2½-in	65,300 l. f.	0.35	0.2557	0.20
43. Ducts, 3½-in	26,300 l. f.	0.40	0.2943	0.20
44. Elect. conduits, 1-in	41,800 l. f.	0.40	0.616	0.60
45. Elect. conduits, 1½-in	1,000 l. f.	0.50	0.814	0.80
46. Elect. conduits, 1¼-in	100 l. f.	0.60	0.902	0.80
47. Elect. conduits, 2-in	14,000 l. f.	0.75	1.056	1.20
48. Elect. boxes — ceiling light	36 ea.	140.00	53.81	120.00
49. Elect. boxes — inclined light	472 ea.	110.00	46.64	60.00
50. Elect. boxes — vert. light.	20 ea.	110.00	45.65	90.00
51. Elect. boxes — control	22 ea.	170.00	87.45	160.00
52. Elect. boxes — relay boxes.	11 ea.	170.00	87.45	160.00
53. Elect. boxes — junction boxes JB1	11 ea.	35.00	42.90	35.00
54. Elec. boxes — junction boxes JB2 & JB3	22 ea.	30.00	33.83	20.00
55. Elect. boxes — outlet	20 ea.	25.00	29.15	22.00
56. Elect. boxes — outlet	44 ea.	25.00	22.00	30.00
57. Elect. boxes — outlet	11 ea.	25.00	8.80	8.00
58. Sheet steel for panning	8,000 lb.	0.15	0.50	0.05
59. Steel pipe for panning drains and grouting	3,700 l. f.	0.45	0.60	0.50
60. Drilling holes in rock	15,000 l. f.	0.40	0.60	0.60
61. Field welding of steel plate tun. lining	10,000 s. f.	0.35	1.00	0.25
62. Full circ. and split vit. clay pipe drs	3,200 l. f.	1.20	1.00	1.00
63. Exp. bolts for wire mesh	1,500 ea.	0.50	0.50	0.20
64. Cork joint filler	3,120 s. f.	0.20	0.50	0.50
65. French drains	20,400 l. f.	1.15	0.60	2.00
66. Waterproofing	21,900 s. y.	0.30	0.30	0.20
67. Grouted rubble ditch	1,000 s. y.	1.50	3.60	1.50
68. Water wells	600 l. f.	4.00	8.00	20.00
69. Class 1 excav	145,000 c. y.	0.35	0.65	0.75
70. Class excav	1,500 c. y.	2.50	3.10	2.00
71. Subbase mat	1,200 c. y.	1.85	2.00	2.00
72. Conc. (not incl. cement)	300 c. y.	22.00	22.50	18.00
73. Plain steel bars	10,000 lb.	0.06	0.06	0.05
74. Stone backfill for struct	25 c. y.	2.50	4.25	4.00
75. Manholes	4 ea.	120.00	207.00	80.00
76. Type RS-1 inlets (incl. Portland cement)	6 ea.	110.00	207.00	60.00
77. Interlocking style cast iron pipe, 18-in	110 l. f.	2.75	4.14	4.00
78. Interl. style cast iron pipe (Heavy) 30-in	150 l. f.	7.55	12.65	10.00
79. Interlocking style cast iron pipe, 36-in	156 l. f.	9.30	13.57	10.00
80. Asph. coat. corr. metal pipe, #8Ga. (F.C.) 60-in	175 l. f.	13.50	15.30	16.00
81. Corr. metal pipe, 54-in	140 l. f.	9.30	10.70	11.00
82. Reinf. conc. pipe (inc. Port. cem.) 18-in	140 l. f.	2.25	2.88	3.00
83. Reinf. conc. pipe (ex. str. inc. P. C.) 24-in	210 l. f.	3.45	4.72	4.00
84. Stone underdrain	1,360 l. f.	0.80	1.27	1.00
85. Perf. vit. clay tile underdrain 8-in	3,800 l. f.	1.10	2.30	1.00
86. Tile outlets, 8-in	25 l. f.	0.65	2.07	1.00
87. D. S. vit. clay pipe-enc. conc. (inc. P. C.) 24-in.	1,850 l. f.	8.75	13.80	10.00
88. Grouted rubble gutter (inc. P. C.)	700 s. y.	1.60	4.14	3.00
89. Grouted rubble segmental spillway (inc. P. C.)	8 c. y.	15.00	13.80	15.00
90. Portland cement	450 bbls.	2.40	2.70	2.80

HIGHWAY BRIDGE, W. VA.

OWNER: West Virginia State Road Commission; M. R. Hamill, secretary; J. S. Jordan, Elkins, engineer.

PROJECT: Construction of Fink Run bridge and approaches including drainage, grading, concrete paving and reinforced concrete arch. Spans are 65, 80, and 65 ft. continuous I-beams. Site is about one mile east of Franklin, Pendleton County, on U. S. Route 33. Shipping point is Petersburg, about 30 miles from site. Construction is to start not later than ten days after date of award and to be complete within 110 working days.

BIDS: Six bids were received Mar. 28, 1939, ranging from $37,754 to $55,567. Minimum labor rates are as follows: skilled, $1.00 per hr.; semi-skilled, 50c. per hr.; common, 40c. per hr.

LOW BIDDERS:

1. Potomac Engineering Construction Co., Cumberland, Md. $37,754
2. Echols Bros., Inc., Staunton, Va..... 39,485
3. C. C. Dodd Construction Co., Spencer, W. Va. 39,635

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Dry excav	75 c. y.	$1.00	$1.50	$2.00
2. Wet excav	30 c. y.	2.50	5.00	5.00
3. Rock excav	20 c. y.	5.00	10.00	6.00
4. Cl. "A" conc.— super	160 c. y.	19.00	20.00	22.00
5. Cl. "A" conc.— sub	65 c. y.	19.00	20.00	20.00
6. Cl. "B" conc	158 c. y.	17.65	18.00	18.00
7. Conc. railing	422.5 l. f.	3.50	3.00	3.00
8. Reinf	40,240 lbs.	.05	.05	.05
9. Steel superstructure	L.S.	9,950.00	9,600.00	9,500.00
10. Clearing right of way	2,336 l. f.	.06	.10	.05
11. Unclass. excav	14,400 c. y.	.335	.40	.35
12. Borrow	6,000 c. y.	.30	.40	.35
13. Overhaul	15,000 s. y.	.01	.01	.02
14. Struct. excav	105 c. y.	1.50	1.50	1.50
15. Macadam base	1,030 c. y.	4.75	5.00	4.50
16. Road mix aggr. limestone	300 tons	3.50	4.00	3.60
17. Tar — prime	1,840 gals.	.19	.14	.17
18. Tar — cover	5,520 gals.	.17	.14	.17
19. 15-in. reinf. concrete pipe	92 l. f.	2.00	2.00	2.00
20. Relaid pipe	34 l. f.	1.50	1.00	1.00
21. Class "A" conc	6 c. y.	21.00	20.00	20.00
22. Class "B" conc	27 c. y.	20.25	20.00	19.00
23. Reinf	800 lbs.	.05	.05	.05
24. Special rock fill	1,000 c. y.	1.25	1.30	1.50
25. Removing present superstructure	L.S.	500.00	500.00	1,700.00